TEAC®

SERVICE MANUAL

X-300R/X-300

Stereo Tape Deck

X-300Rは海外専用モデルです。

Effective: September 1983, A-30057

5-704018200

1 SPECIFICATIONS AND SERVICE DATA

SPECIFICATIONS

Track system 4-track two-channel stereo
Head system 3 heads: erase, record, playback
Reel size 7" and 5"
Tape speed 19 cm/s (7-1/2 ips) and 9.5 cm/s (3-3/4 ips)
Inputs (level and impedance)
MIC: Specified input level: −60 dB (0.775 mV)/10 kohms
Min. input level: −70 dB (245 μV)
LINE IN: Specified input level: −12 dB (195 mV)/50 kohms
Min. input level: −22 dB (61.5 mV)
Outputs (level and impedance)
OUTPUT: Specified output level: −5 dB (436 mV)/10 kohms
Max. output level: +1 dB (0.869 V)
PHONES: Specified output level: −24 dB (48.9 mV)/8 ohms
Playback equalization
"LH" tape: 19 cm/s: 3,180 μs + 50 μs (NAB)
9.5 cm/s: 3,180 μs + 90 μs (NAB)
"EE" tape: 19 cm/s: 3,180 μs + 35 μs
9.5 cm/s: 3,180 μs + 50 μs
Motors 1 DC servo capstan motor
2 Induction reel motors
Bias frequency 100 kHz
Operating position Vertical, horizontal
Power requirements
100/120/220/240 V AC, 50/60 Hz, 85 W (General export model)
120 V AC, 60 Hz, 70 W (USA/Canada)
220 V AC, 50 Hz, 85 W (Europe)
240 V AC, 50 Hz, 85 W (UK/AUS)
100 V AC, 50/60 Hz, 70 W (Japan)
Weight 15 kg (33-1/16 lbs) net (X-300R)
14 kg (30-14/16 lbs) net (X-300)

Dimensions

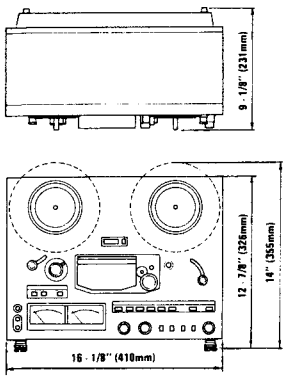


Fig. 1-1

SERVICE DATA

MECHANICAL

Tape speed deviation 3,000 Hz ±30 Hz
Tape speed drift 20 Hz
Wow and flutter
Playback: 0.06% (WRMS), 0.12% (RMS) at 19 cm/s
0.10% (WRMS), 0.15% (RMS) at 9.5 cm/s
Record/playback: 0.08% (WRMS) at 19 cm/s
0.15% (WRMS) at 9.5 cm/s
Pinch roller pressure 1.5 to 1.7 kg (3.31 to 3.75 lbs)
Reel torque (play mode)
Take-up: 330 to 470 g-cm (4.58 to 6.53 oz-inch)
Back tension: 220 to 280 g-cm (3.06 to 3.89 oz-inch)
Brake torque
Forward direction: 1200 to 1400 g-cm (16.7 to 19.4 oz-inch)
Reverse direction: 500 to 700 g-cm (6.94 to 9.72 oz-inch)
Left/right deviation: 150 g-cm (2.09 oz-inch)
Fast winding time 140 seconds or less for 550 m (1800 feet)

ELECTRICAL

Frequency response
See Figs. 3-6 to 3-9.
Signal-to-noise ratio
Playback

	19 cm/s	9.5 cm/s
LH	≧49 dB	≧47 dB
EE	≧51 dB	≧49 dB

Overall

	19 cm/s	9.5 cm/s
LH (II)	≧47 dB	≧45 dB
EE	≧48 dB	≧46 dB

Erase efficiency 70 dB min. at 1 kHz (measured with input 10 dB higher than the specified input level)
Channel separation 50 dB min. at 1 kHz
Adjacent track crosstalk 40 dB min. at 125 Hz
Total harmonic distortion 1.0% or less at 1 kHz with "LH (II)" tape
1.5% or less at 1 kHz with "EE" tape

NOTES:
1. Improvements may result in changes in the SPECIFICATIONS AND SERVICE DATA.
2. 0 dB is referenced to 0.775 V, unless otherwise specified.
3. Playback performance specifications refer to operation in both forward and reverse play modes.

CAUTION
⚠ Parts marked with this sign are safety critical components. they must always be replaced with identical components – refer to the appropriate parts list and ensure exact replacement.

注意 1．プリント基板図はパターン面が示されています．
2．＊印の部品は納期が若干かかります，あらかじめご了承下さい．
3．⚠印は安全規格重要部品です．交換するときは必ずティアック指定の部品を使用して下さい．

2 MECHANICAL ADJUSTMENT AND CHECKS

2-1 CAPSTAN THRUST CLEARANCE

1. There must be a clearance of 0.1 to 0.3 mm between the capstan shaft and the thrust plate. Check to see that the clearance is within this range. If not, loosen the two screws on the flywheel, adjust the clearance, and retighten the screws.

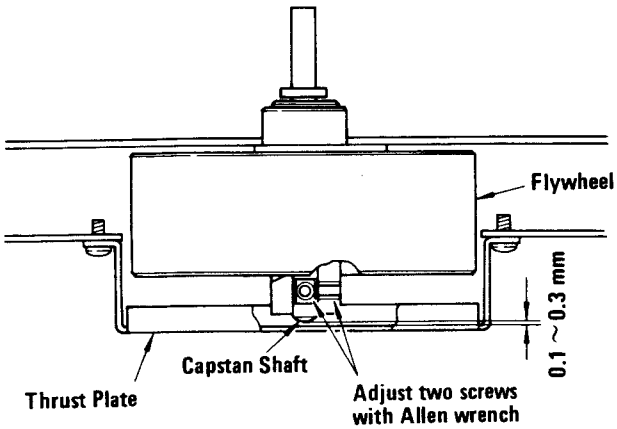


Fig. 2-1

2-2 SHUT-OFF SWITCH POSITION

1. There must be a clearance of 1 to 1.5 mm between the cam and actuator(A) when the microswitch is off, and 0.5 mm between the microswitch and actuator(B) when the microswitch is on. Check to see that the clearance is within these values. If not, adjust as necessary.

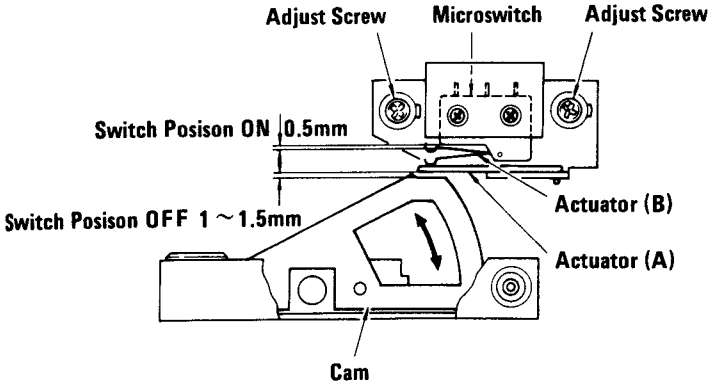


Fig. 2-2

2-3 BRAKE MECHANISM

NOTE: Be sure that the power is turned off prior to making any adjustments to the brakes.

1. Screw(A) for the left brake (as viewed from the front) must be adjusted so that there is a clearance of 1 mm between lever(C) and lever(E). Screw(A) for the right brake must then be adjusted so that lever(B) is parallel to lever(C).
2. Push the plunger until there is contact at (a); i.e., until the clearance has been eliminated, but make sure that the plunger is not pushed so strongly that the levers (E) (C), and (B) are deflected – they must remain in a horizontal plane.
3. Position the solenoid housing, while the plunger is pushed as described in step #2 above, so that the gap at (f) (the distance between the leftmost edge of the plunger and the leftmost edge of the solenoid housing) is between 11 to 12 mm. When the solenoid housing is so positioned, the plunger should be able to be deflected between 1 to 2 mm when pushed strongly.

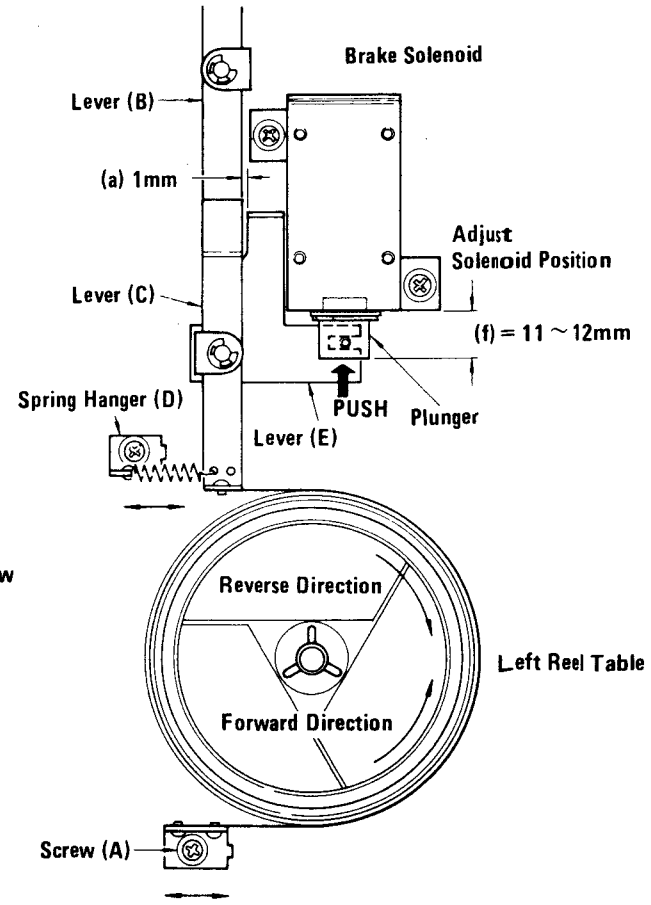
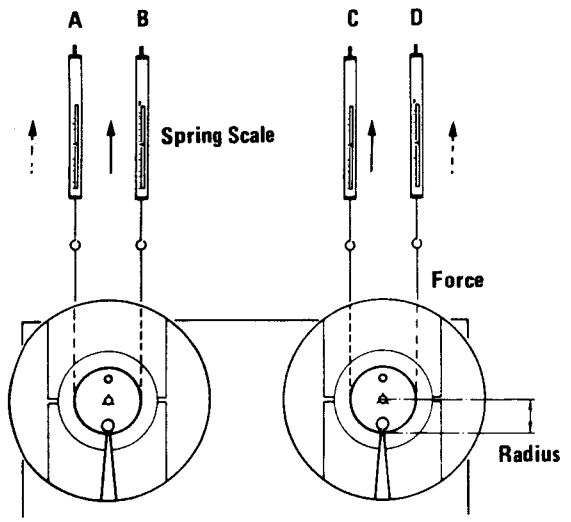


Fig. 2-3

2-4 BRAKE TORQUE

NOTE: Before making any brake adjustments or measurements, make sure the power is off.

1. Mount an empty 7" reel onto either reel table and attach a spring scale to the reel with a string.
2. Smoothly pull the scale away from the reel under test and note the torque value when the reading on the scale is steady. The proper torque values are given in the chart below.
3. Follow steps 1 and 2 for each measuring condition; i.e., (A) through (D) in Fig. 2-4.
4. If the forward-direction torque is not correct, change the hooking position of the spring hanger (reference (D) in Fig. 2-3) for the corresponding brake requiring adjustment. If, after the forward-direction torque has been properly adjusted and the reverse-direction torque is not correct, or the forward-direction torque is still not correct, check to see if the brake felt pad is worn, and also check that the brake mechanism is properly aligned as explained in Section 2-3, "Brake Mechanism". If necessary, replace the entire reel table.



↑ Forward direction (B) (C)	1200 – 1400 g-cm (16.7 – 19.4 oz-inch)
↑ Reverse direction (A) (D)	500 – 700 g-cm (6.94 – 9.72 oz-inch)
Left/Right deviation	150 g-cm (2.09 oz-inch)

Torque calculating formulas:

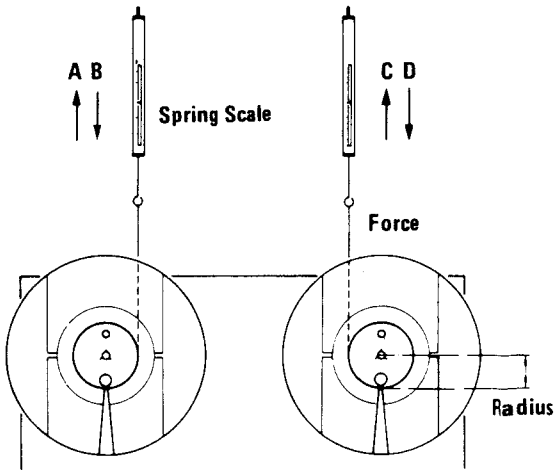
1. Torque (in g-cm or oz-inch)
   = Force or Weight (in g or oz) x Radius (in cm or inch)
2. Conversion of g-cm to oz-inch:
   g-cm x 0.0139 = oz-inch

Fig. 2-4

2-5 REEL MOTOR TORQUE

TAKE-UP TORQUE

1. Hold the right tension arm up using a rubber band.
2. Mount an empty 7" reel onto the right (left) reel table, and attach a spring scale to the reel with a string.
3. Place the deck in the forward (reverse) play mode.
4. Allow the rotation of the reel to slowly pull the scale toward the reel.
5. Hold the spring scale with enough force to allow a steady reading.
6. Measure the take-up torque. The proper values are given in the chart below.
7. There is no specially-provided adjustment for take-up torque, so if correction is needed, repair or replace the defective part and/or circuit.



* X-300R only

Take-up:	(B) in REV (D) in FWD*	330 to 470 g-cm (4.58 to 6.53 oz-inch)
Back tension:	(A) in FWD (C) in REV*	220 to 280 g-cm (3.06 to 3.89 oz-inch)

NOTE: For torque calculation, refer to the formulas provided in Fig. 2-4.

Fig. 2-5

BACK TENSION

8. Place the deck in reverse (forward) play mode.
9. Using a steady, smooth motion, pull against the motor torque to draw the scale away from the reel.
10. After making sure that the reel motion is smooth (the string should not be rubbing against the reel flanges), note the value indicated on the scale.
11. The proper values are given in Fig. 2-5.
12. If necessary, adjust the slider of resistor (R802) until the proper torque values in both forward and reverse play modes are obtained. See Fig. 2-6.

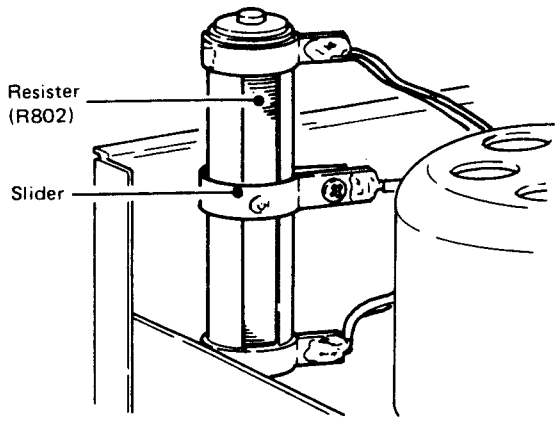


Fig. 2-6

2-6 PINCH ROLLER PRESSURE

1. Hold the right tension arm up using a rubber band, string, etc.
2. Place the deck in the forward play mode without threading any tape.
3. Attach a spring scale to the pinch roller as shown in Fig. 2-7.
4. Pull the pinch roller away from the capstan shaft (on a plane intersecting the center of the capstan shaft and the pinch roller) until the capstan shaft and the pinch roller are separated.
5. Ease pressure on the scale until the pinch roller just begins to turn. The scale should then read 1.5 kg to 1.7 kg (3.31 lbs to 3.75 lbs).
6. By pressing the DIRECTION switch, change play mode to reverse direction and measure in the same way as previously described. Specification is the same as that for forward play mode.

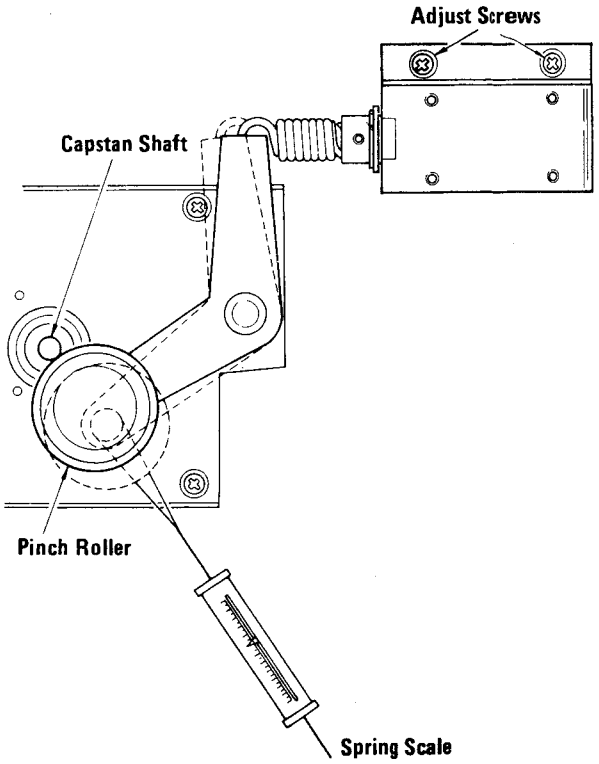


Fig. 2-7

2-7 REEL TABLE HEIGHT

1. As a general reference, the height of the reel table should roughly correspond to a distance of 38 mm (1-7/16") between the chassis of the deck and the rubber mat on the reel table. If checking reveals any large deviation from this value, loosen the two adjustment screws on the reel table, adjust the height, and retighten the screws.
2. For fine-adjustment, check that, while in fast-forward or rewind modes starting at the beginning of the tape, the tape does not touch the upper or lower reel flanges. If it does, fine-adjust accordingly.

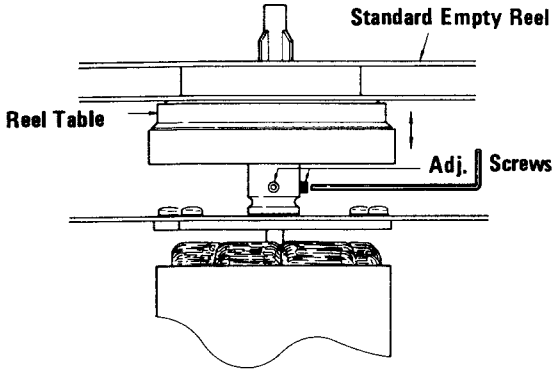


Fig. 2-8

2-8 TAPE SPEED

NOTE: Conduct the following steps in both forward and reverse play modes.

1. Connect a frequency counter to either OUTPUT jack. (See Fig. 2-9).
2. Load a TEAC YTT-2003 test tape containing a 3000-Hz test tone, and set the SPEED switch to HIGH (19 cm/sec or 7-1/2 ips).
3. Play the middle of the test tape and adjust the HIGH speed trimmer resistor until the frequency counter indicates a reading of 3000 Hz (±5 Hz). See Fig. 2-10. (CAUTION: Use an insulated screwdriver to prevent shorting.)
4. Playing the tape at both the beginning and the end, check that the tape speed does not vary any more than the limits prescribed in the specifications, so that there is never a total deviation of more than ±30 Hz from the 3000-Hz test tone, nor a drift of more than 20 Hz at any given time.
5. Using a TEAC YTT-2002 test tape, repeat steps #3 and #4 above with the SPEED switch set to LOW (9.5 cm/sec or 3-3/4 ips). In step #3, the speed may be adjusted for the proper initial setting by using the LOW speed trimmer resistor.

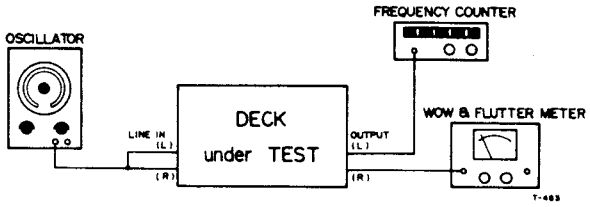


Fig. 2-9

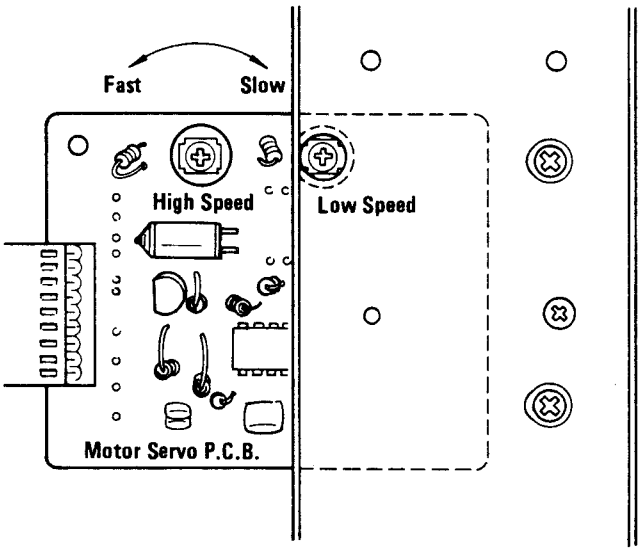


Fig. 2-10

2-9 WOW AND FLUTTER

PLAYBACK

NOTE: This paragraph applies to both forward and reverse play modes.

1. Connect a wow-and-flutter meter to the deck as shown in Fig. 2-9.
2. Load a TEAC YTT-2003 test tape to check the wow and flutter when the deck is set to HIGH speed, or a YTT-2002 test tape to check when set to LOW speed.
3. Play the beginning and end of the respective test tape for each speed setting. The measured wow and flutter should be at least 0.06% (WRMS) and 0.12% (RMS) for the HIGH speed setting and at least 0.10% (WRMS) and 0.15% (RMS) for the LOW speed setting.

OVERALL

4. Load TEAC YTT-8013 test tape and record a 3000-Hz signal on it in both HIGH and LOW speed settings and at the beginning and end of the tape, and while recording the signal, simultaneously monitor the signal from the play head by setting the MONITOR switch to the TAPE position (raised position).
5. The wow-and-flutter meter should indicate a reading of no more than 0.08% (WRMS) in the HIGH speed setting and no more than 0.15% (WRMS) in the LOW speed setting.

2-10 HEAD AND TAPE PATH ALIGNMENT

1. By visual observation, align the erase, record, and playback heads so that the proper tilt is obtained for each.
2. Coarse-adjust the azimuth of the erase, record, and playback heads by observing each without a tape threaded.
3. Load a TEAC YTT-8013 test tape and play it in the forward direction.
4. Fine-adjust the height of each head as shown in Fig. 2-12. When adjusting, make sure all the screws are turned proportionately so that the tilt and azimuth previously adjusted is not altered.
5. If required, coarse adjust any head requiring tangency correction.

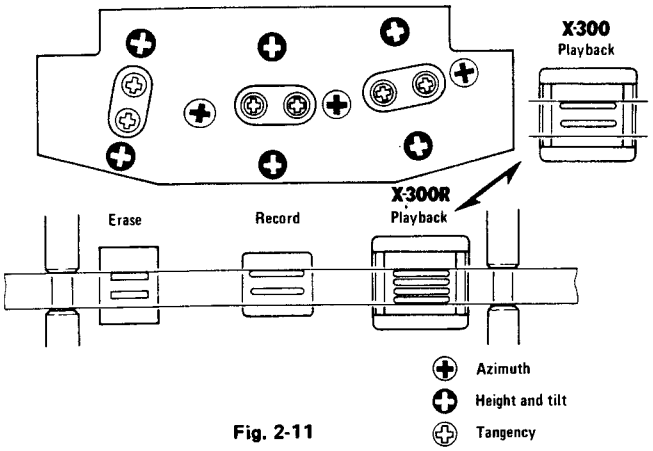


Fig. 2-11

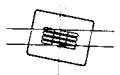
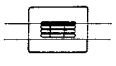
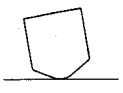
Condition	Example of misalignment
TILT The head surface should be parallel to the tape guide pin surface.	
AZIMUTH The gap of the head core should be perpendicular to the tape path.	
HEIGHT (A) Erase head The upper edge of the upper core of the head should protrude 0.1 mm above the upper edge of the tape. (B) Record head, Playback head (X-300) The brass-colored spacer of the head should appear about as thin as a pencil line above the tape. (C) Playback head (X-300R) The distance from the top head core to the top edge of the tape and from the bottom head core to the bottom edge of the tape should be equal.	
TANGENCY The dotted line should be perpendicular to the surface of the tape.	

Fig. 2-12 Head alignment conditions

2-11 REVERSE GUIDE HEIGHT (X-300R)

1. Check, and if necessary, align head and tape path mentioned in 2-10.
2. Thread a TEAC YTT-8013 test tape on the deck, and in the reverse direction run the tape at the beginning and the end of the tape.
3. Check that tape moves exactly on the center of the playback head, i.e., that playback head height (refer to Fig. 2-12) is also maintained in reverse play mode.
4. If not, loosen the set screw and turn the reverse guide clockwise or counterclockwise for adjustment, then retighten set screw.

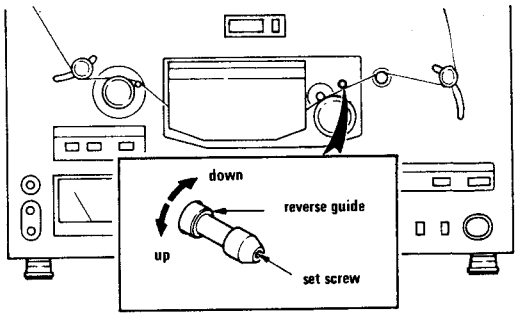


Fig. 2-13

2-12 FREQUENCY AND VOLTAGE CONVERSION

General Export Models Only:

If it is necessary to change the frequency and line voltage settings, follow the instructions below:

ALWAYS DISCONNECT THE POWER LINE CORD BEFORE MAKING THESE ADJUSTMENTS.

1. Remove the metal housing* covering the top and sides of the deck by unscrewing the three screws from each side.
2. Locate the voltage selector on the right (as seen from the front). The frequency selectors are located near each motor as illustrated.

VOLTAGE CONVERSION:

3. Turn the slotted center post of the selector with a screwdriver or coin as illustrated until the proper setting is obtained.

FREQUENCY CONVERSION:

4. For each reel motor, loosen the screws on the respective frequency selector bar and jumper the bar to the terminal corresponding to the AC line frequency of your area, then retighten the screws.
5. Replace the housing and retighten the screws.

* Decks in some areas have a wooden case which can be removed by unscrewing the screws on the bottom (feet) and side.

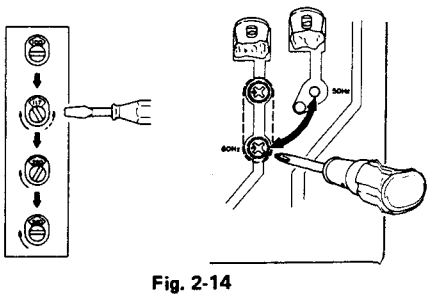


Fig. 2-14

2-13 LUBRICATION

Oiling is needed after every 1,000 hours of operation or once a year if the deck is used infrequently. TEAC spindle oil (from TEAC TZ-255 oil kit), Mobil D.T.E. Oil Light, and similar types of oil are recommended. Lubrication is normally not necessary except at the points shown.

1. Place the deck in a horizontal position.
2. Apply a few drops of oil to the respective spindles shown, except the capstan and the reel motors. Spread the oil evenly on the spindle surfaces using a cotton cloth or similar applicator.
3. For the capstan and reel motors, apply a few drops to the indicated positions but do not spread the oil.
4. After oiling all points, operate the deck for 1 to 2 hours until the oil is thoroughly absorbed.

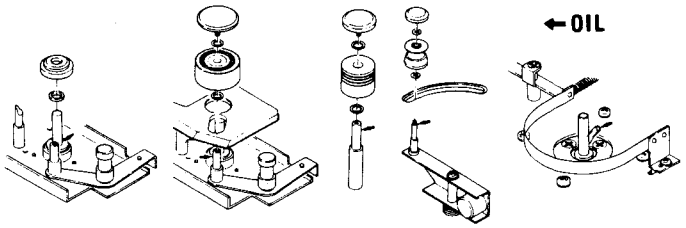


Fig. 2-15

3 ELECTRICAL ADJUSTMENT AND CHECKS

NOTES:
1. Clean and demagnetize the entire tape path prior to making any adjustments or checks.
2. Make sure that the deck is properly set for the voltage in your area.
3. Adjustments and checks are generally done in order of L-ch, then R-ch. Double reference numbers indicate L-ch/R-ch. (Example: R121/R221)
4. 0 dB is referenced to 0.775 V. If an AC voltmeter is used which references 0 dB to 1 V, appropriate compensation must be made.
5. An AC voltmeter with an input impedance of 1 M ohms or more must be used.
6. In the charts, instruction in the MODE/INSTRUCTION column at each step is continued from previous step indication unless specified here.

3-1 POWER SUPPLY CHECK

1. Connect a DC voltmeter to pin 15 of U102 on the R & P AMPL PCB.
2. The DC voltage shoud be +12 V. (See Fig. 3-1)

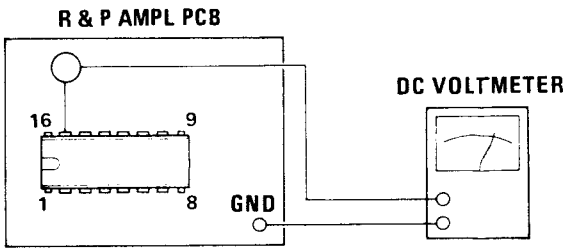


Fig. 3-1

3-2 MONITOR PERFORMANCE

Deck settings: MONITOR sw.: SOURCE

ITEM		CONNECTION	MODE/ INSTRUCTION	SIGNAL SOURCE	ADJUST (or CHECK)	OUTPUT	REMARKS
1. MONITOR output level	1-1	Fig. 3-2	MIC cont: MIN LINE cont: MAX OUTPUT cont: MAX	400 Hz/−22 dB (61.5 mV)	R123/R223	+1 dB (0.869 V)	LINE min. input level
	1-2	"	"	"	OUTPUT cont. (L/R) If channels do not match, re-adjust R123/ R223 to correspond to the lower OUTPUT.	−5 dB (436 mV)	Specified position for OUTPUT control
	IMPORTANT: After setting OUTPUT control (L/R), always leave in specified position.						
	1-3	"	OUTPUT cont: Spec. position	400 Hz/−12 dB (195 mV)	LINE cont.	−5 dB	Specified position for LINE control

ITEM		CONNECTION	MODE/ INSTRUCTION	SIGNAL SOURCE	ADJUST (or CHECK)	OUTPUT	REMARKS
2. VU meter	2-1	Fig. 3-2	LINE cont: Spec. position (1-3)	400 Hz/−12 dB (195 mV)	R131/R231	0 VU on VU meter	
3. MIC input level	3-1	Fig. 3-2 but LINE IN → MIC	MIC cont: MAX LINE cont: MIN	400 Hz/−70 dB (245 μV)	Check	−5 dB ±2 dB (346 mV to 548 mV)	MIC min. input level
4. PHONES output level	4-1	Fig. 3-3	LINE cont: Spec. position (1-3) MIC cont: MIN	400 Hz/−12 dB (195 mV)	Check	−24 dB ±2 dB (38.8 mVto 61.5 mV)	
	IMPORTANT: After step 4-1 is completed, do not alter any of the controls during later checks.						

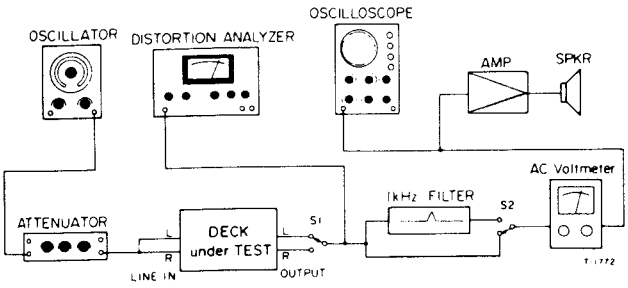


Fig. 3-2 Basic connection

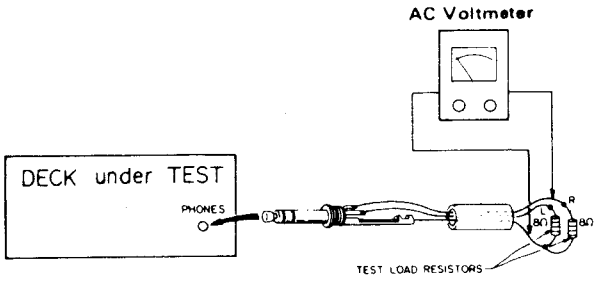


Fig. 3-3 Connection for PHONES check

3-3 PLAYBACK PERFORMANCE

Deck settings:
- MONITOR sw.: TAPE
- MIC controls (L/R): Minimum level position
- LINE controls (L/R): Specified position (step 1-3)
- OUTPUT controls (L/R): Specified position (step 1-2)

- YTT-1052: For 9.5 cm/s or 3-3/4 ips, EE
- YTT-1053: For 19 cm/s or 7-3/4 ips, EE

For recording alignment (blank)
- YTT-8013: For LH (I, II)
- YTT-8053: For EE

TEAC test tapes: For playback alignment
- YTT-1002: For 9.5 cm/s or 3-3/4 ips, LH (I, II)
- YTT-1003: For 19 cm/s or 7-3/4 ips, LH (I, II)

NOTE: TAPE SELECTOR (left) switch has no effect on playback mode.

ITEM		CONNECTION	MODE/ INSTRUCTION		SIGNAL SOURCE	ADJUST (or CHECK)	OUTPUT	REMARKS
5. Playback head azimuth	5-1	Fig. 3-4	FWD direction SPEED sw.: HIGH TAPE SELECTOR (R): LH (I, II)		YTT-1003 (16 kHz/−10 dB)	Azimuth adjust screw on head (Fig. 2-11)	Phase: within 45° on oscilloscope (Fig. 3-5)	
6. Playback level	6-1	Fig. 3-2	SPEED: HIGH TAPE SELECT. (R): LH (I, II)	FWD	YTT-1003 (400 Hz/0 dB)	R111/R211	−5 dB (436 mV)	
	6-2	"		REV	"	Check	−5 dB ±2 dB (346 mV to 548 mV)	

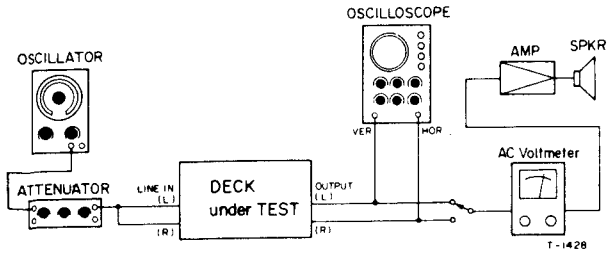


Fig. 3-4 Connection for azimuth check

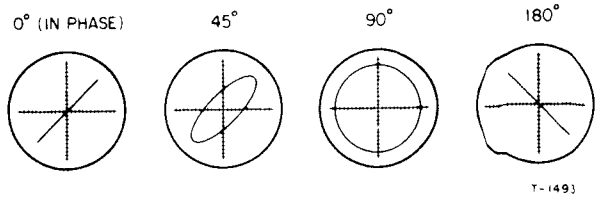


Fig. 3-5 Confirming phase relationship

ITEM		CONNECTION	MODE/ INSTRUCTION		SIGNAL SOURCE	ADJUST (or CHECK)	OUTPUT	REMARKS
7. Frequency response	7-1	Fig. 3-2	FWD TAPE SELECT. (R): LH (I, II)	HIGH	YTT-1003	R116/R216	Fig. 3-6	
	7-2			LOW	YTT-1002	R120/R220	Fig. 3-7	
	7-3	Changing play mode to REV direction, check whether the frequency response specs are met according to 7-1 and 7-2.						
	7-4	"	FWD TAPE SELECT. (R): EE	HIGH	YTT-1053	R114/R214	Fig. 3-6	
	7-5	"		LOW	YTT-1052	R118/R218	Fig. 3-7	
	7-6	Changing play mode to REV direction, check whether the frequency response specs are met according to 7-4 and 7-5.						
8. Signal-to-noise	8-1	Fig. 3-2	FWD and REV HIGH and LOW LH (I, II) and EE Use fully-erased tape (Use bulk tape eraser)		YTT-8013 and YTT-8053	Check	LH (I, II) {HIGH: 49 dB {LOW: 47 dB EE {HIGH: 51 dB {LOW: 49 dB	• Ratio of spec. OUTPUT signal (–5 dB) to inherent noise level • Change-over of AC line plug polarity. The worse reading should be within specification.

3-4 RECORDING PERFORMANCE

Deck settings:
MONITOR sw.: TAPE
MIC controls (L/R): Minimum level position
LINE controls (L/R): Specified position (step 1-3)
OUTPUT controls (L/R): Specified position (step 1-2)

TEAC test tapes: For recording alignment (blank)
YTT-8013: For LH II
YTT-8053: For EE

ITEM		CONNECTION	MODE/ INSTRUCTION		SIGNAL SOURCE	ADJUST (or CHECK)	OUTPUT	REMARKS
9. Bias trap	9-1	AC voltmeter between terminals #72(75) and #78 R & P AMPL PCB	Rec-pause mode		–	L106/L206	Min. reading on AC voltmeter	
	9-2	Fig. 3-2	"		–	L101/L201	Min. reading [–40 dB or more (7.75 mV or less)]	
10. Record bias (LH II)	10-1	Fig. 3-2	Test tape: YTT-8013 SPEED sw.: LOW Bias/EQ: LH II		7 kHz/–32 dB (19.5 mV)	Azimuth adjust screw of head	Maximum output level	
	10-2	Fig. 3-2	"		"	C141/C241	Over bias value 2 dB ~ 4 dB (from peak)	
11. Record level (LH II)	11-1	Fig. 3-2	Test tape: YTT-8013 SPEED sw.: HIGH Bias/EQ: LH II		400 Hz/–12 dB (195 mV)	R158/R258	–5 dB (436 mV)	
12. Frequency response (LH I, LH II)	12-1	Fig. 3-2	YTT-8013 Bias/EQ: LH II	HIGH	Required signal/ –22dB (61.5mV)	L102/L202	Fig. 3-8	
	12-2	"		LOW	Required signal/ –32 dB (19.5 mV)	L104/L204	Fig. 3-9	
	12-3	"	SPEED sw.: LOW Bias/EQ: LH I		10 kHz/–32 dB (19.5 mV)	Check	When Bias/EQ are changed from LH II to LH I, output level should be raised by +3 dB at 10 kHz.	
13. Record bias (EE)	13-1	Fig. 3-2	Test tape: YTT-8053 SPEED sw.: LOW Bias/EQ: EE		7 kHz and 400 Hz/–32 dB (19.5 mV)	C142/C242	Nearly equal output level at both frequencies	
14. Record level (EE)	14-1	Fig. 3-2	Test tape: YTT-8053 SPEED sw.: HIGH Bias/EQ: EE		400 Hz/–12 dB (195 mV)	R159/R259	–5 dB (436 mV)	

ITEM		CONNECTION	MODE/ INSTRUCTION		SIGNAL SOURCE	ADJUST (or CHECK)	OUTPUT	REMARKS
15. Frequency response (EE)	15-1	Fig. 3-2	YTT-8053 Bias/EQ: EE	HIGH	Required signal/ −22 dB (61.5 mV)	L103/L203	Fig. 3-8	
				LOW	Required signal/ −32 dB (19.5 mV)	L105/L205	Fig. 3-9	
16. Signal-to noise ratio	16-1	Fig. 3-2	YTT-8013 and YTT-8053 HIGH and LOW LH (II) and EE		1 kHz/−12 dB (195 mV) then no-signal recording	Check	LH II {HIGH: 47 dB {LOW: 45 dB EE {HIGH: 48 dB {LOW: 46 dB	Ratio of specified OUTPUT signal (−5 dB)to inherent noise level
17. Erase efficiency	17-1	Fig. 3-2 Switch ON 1 kHz filter	Test tape: YTT-8053 SPEED sw.: HIGH Bias/EQ: EE		1 kHz/−2 dB (615 mV, +10 VU) then no-signal recording	Check	OUTPUT: −65 dB or more (436 μV or less) (70 dB min. ratio)	Ref. OUTPUT level: +5 dB The worst value should be within specification.
18. REC MUTE function	18-1	Fig. 3-2 Switch ON 1 kHz filter	Test tape: YTT-8053 SPEED sw.: HIGH Bias/EQ: EE		1 kHz/−2 dB (615 mV, +10 VU) then record muting	Check	OUTPUT: −60 dB or more (0.775 mV or less (65 dB min ratio)	Ref. OUTPUT level: +5 dB The worst value should be within specification.
19. Channel separation	19-1	Fig. 3-2 Switch ON 1 kHz filter	Test tape: YTT-8053 SPEED sw.: HIGH Bias/EQ: EE		L: 1 kHz/−12 dB (195 mV) R: No signal record.	Check	R: −55 dB or more (1.38 mV or less) (50 dB min. ratio)	Find the difference between the 1 kHz recorded portion and the no-signal-recorded portion
	19-2	"	"		L: No signal record. R: 1 kHz/−12 dB (195 mV)	"	L: "	
20. Adjacent track crosstalk	20-1	Fig. 3-2	Same as 19-1		125 Hz/−12 dB (195 mV)	—	—	
	20-2	"	Interchange R and L reels then playback		—	Check	At both channels: 125 Hz: −45 dB or more (4.36 mV or less) (40 dB min. ratio)	
21. Distortion	21-1	Fig. 3-2	YTT-8013 and YTT-8053 SPEED sw.: HIGH LH (II) and EE		1 kHz/−12 dB (195 mV)	Check	1.0% or less w/ LH (II) 1.5% or less w/ EE	

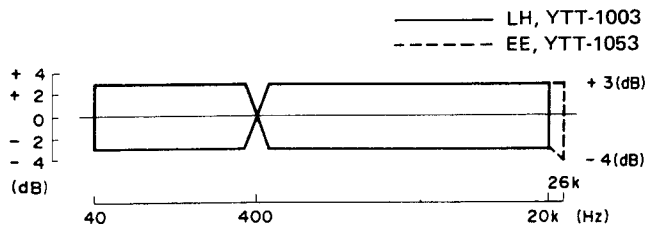


Fig. 3-6 Playback frequency response (HIGH)

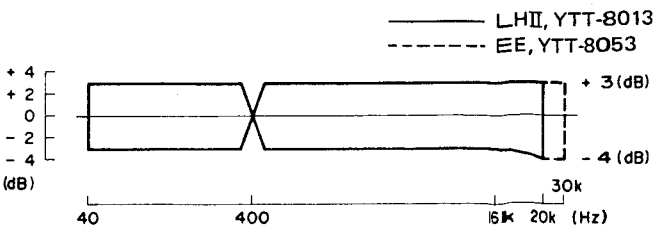


Fig. 3-8 Overall frequency response (HIGH)

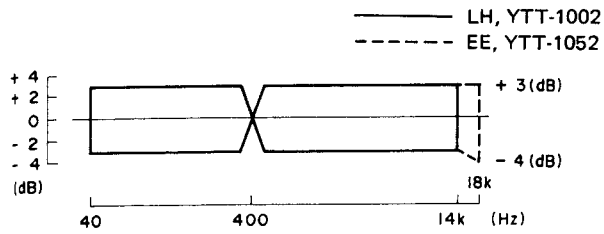


Fig. 3-7 Playback frequency response (LOW)

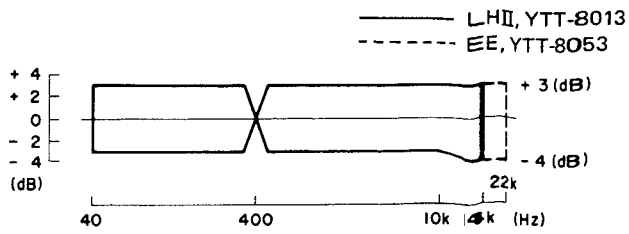


Fig. 3-9 Overall frequency response (LOW)

3-5 ADJUSTMENT AND TEST POINT LOCATIONS

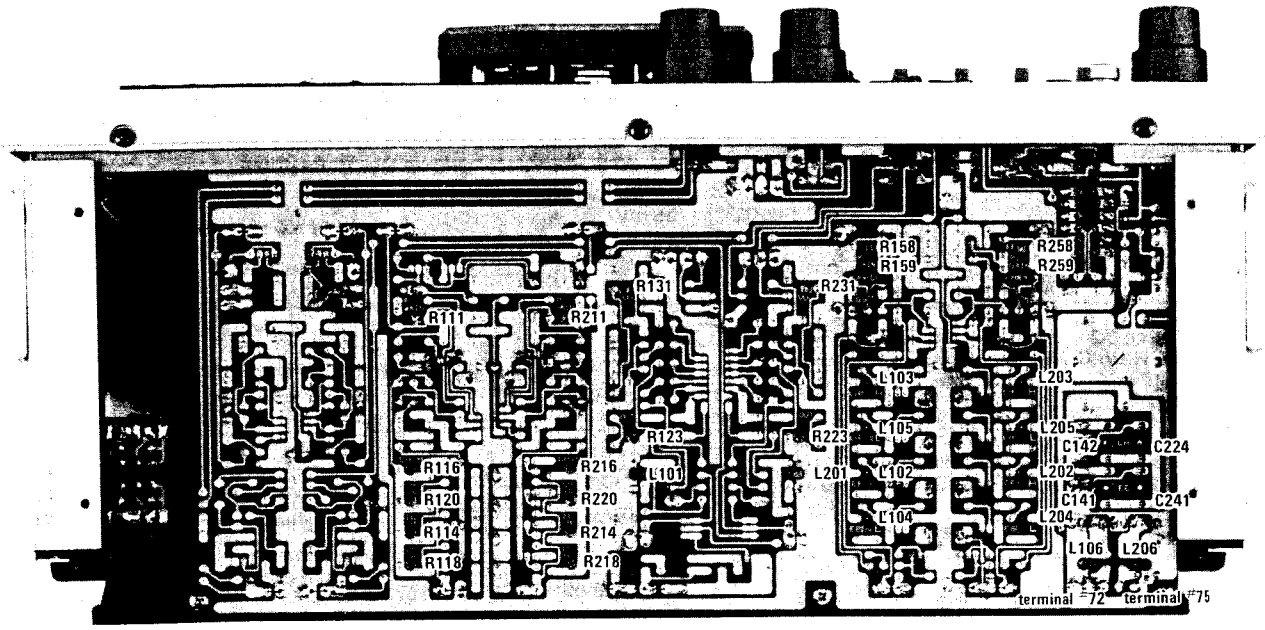


Fig. 3-10

C141/C241	Record bias (LH II)
C142/C242	Record bias (EE)
L101/L201	Bias trap (OUTPUT)
L102/L202	Record EQ (HIGH, LH II)
L103/L203	Record EQ (HIGH, EE)
L104/L204	Record EQ (LOW, LH II)
L105/L205	Record EQ (LOW, EE)
L106/L206	Bias trap
R111/R211	Playback level
R114/R214	Playback EQ (HIGH, EE)
R116/R216	Playback EQ (HIGH, LH)
R118/R218	Playback EQ (LOW, EE)
R120/R220	Playback EQ (LOW, LH)
R123/R223	MONITOR output level
R131/R231	VU meter level
R158/R258	Record level (LH II)
R159/R259	Record level (EE)

1. 機構部の調整とチェック

1.1 キャプスタン・スラスト調整

1. キャプスタン・シャフトおよびスラスト・プレートとの間のすき間が0.1～0.3㎜範囲内であることを確認する。
   この値の範囲内にないときは、フライホイールの2本の止めネジをゆるめ調整する。
2. 調整後は止めネジ2本をしっかりと締め直すこと。
   (図1－1参照)

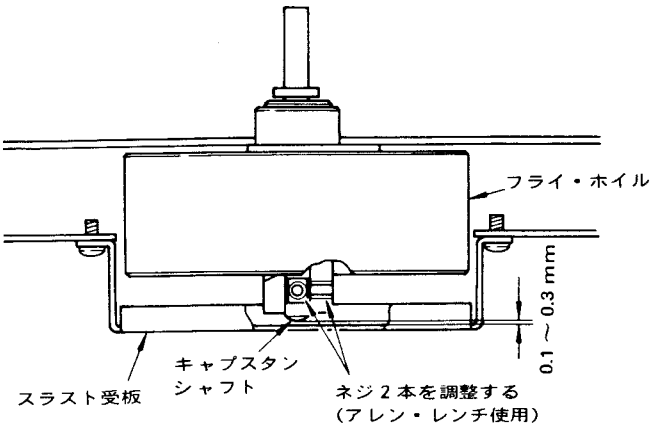


図1－1

1.2 シャット・オフ・スイッチ位置調整

1. マイクロ・スイッチがオフの状態のとき、カムとアクチュエータ(A)とのすき間(A)が1～1.5㎜、マイクロ・スイッチがオンのとき、マイクロ・スイッチ本体とマイクロ・スイッチ本体のアクチュエータ(B)とのすき間(B)が0.5㎜になるように2本の止めネジを調整する。
2. 調整後は止めネジ2本をしっかりと締め直すこと。
   (図1－2参照)

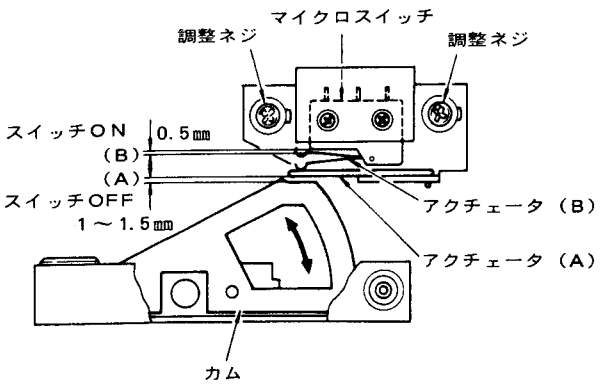


図1－2

1.3 ブレーキ機構調整

1. ネジ1をゆるめ取付板(A)を動かし、レバー(B),(C)とレバー(E)とのすき間(a)が1㎜になるように調整する。このときレバー(B),(C)は平行であること(平行でないとブレーキ解除のタイミングがそろわず動作不良の原因になることもあります)。
2. プランジャ・ソレノイドのピンを指で押し、すき間(a)の寸法が"0"になるとき寸法(f)が11～12㎜になるようにソレノイドの位置をネジ2およびネジ3により調整する。以上の調整により、プランジャは強く押される(吸引される)とき1～2㎜動くようになります。(図1－3参照)

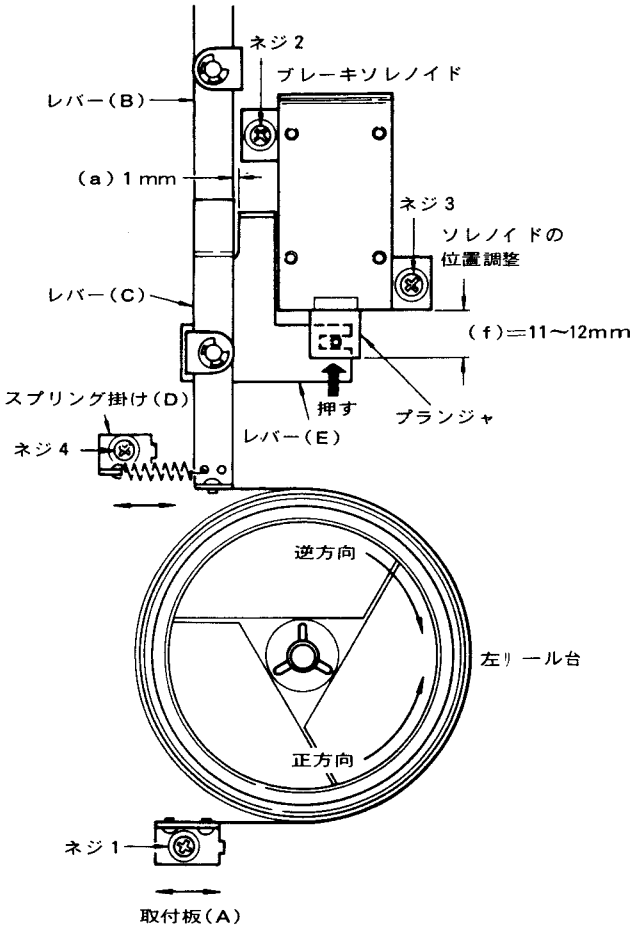
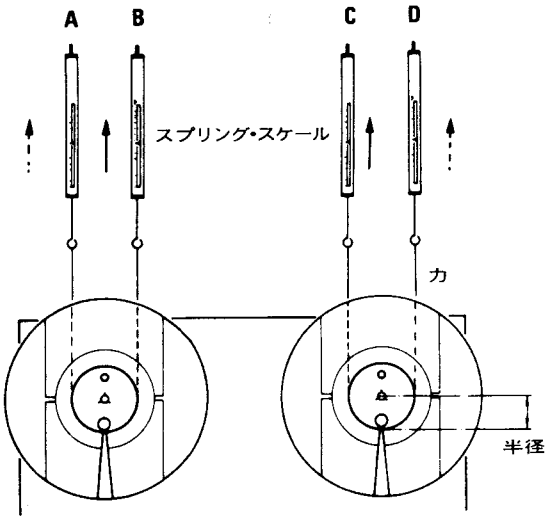


図1－3

1.4 ブレーキ・トルクの調整

1. 糸を取り付けた7インチの空リールをリール・テーブルに装着し、糸の先端にスプリング・スケールを取り付ける。
2. スプリング・スケールを静かに引っ張り、リール・テーブルが動き始めるときのスプリング・スケールの読みを記録します。この読みの値は下表の値以内であること。
3. (b)項の測定を図1－4に示すA，B，C，Dの4個所で行う。
4. 順方向トルクが上表の範囲外のときは、スプリング掛け(D)(図1－3)のネジ4をゆるめスプリング掛け(D)の位置を調整する。
   以上の調整をしても所定のブレーキ・トルクが得られないときはブレーキ・パッドのフェルトが摩耗していないか、また2.3項のブレーキ機構調整が適正に調整されているか否かチェックする。必要ならばリール・テーブル全体を交換する。



ブレーキ・トルク

↑ 順方向（B）（C）	1000～1300g－cm
↑ 逆方向（A）（D）	500～ 700g－cm
左右巻 （順方向のみ適用参考値）	150g－cm

トルク計算式
トルク＝力(g)×半径(cm)

図1－4

1.5 リール・モータ・トルク調整

1.5.1 巻取りトルク（図1－5参照）

1. ゴムベルトを使用し、右テンション・アームを上方に保持する。
2. 糸を取り付けた7インチの空リールを巻取りリール(右側)に装着し、糸の先端にスプリング・スケールを取り付ける。
3. テープ・デッキを再生モードにする。
4. リールが回転し、スプリング・スケールにテンションが加わります。スプリング・スケールの読みが安定するようにスプリング・スケールを一定に保持し読みを記録し、次にトルクを計算する。（計算公式はブレーキ・トルク調整の項参照）
5. トルクの適正値は330～470g－cmである。
6. 巻取りトルクは調整機構がありませんので適正なトルクが得られないときは故障部品および回路の修理を行う。

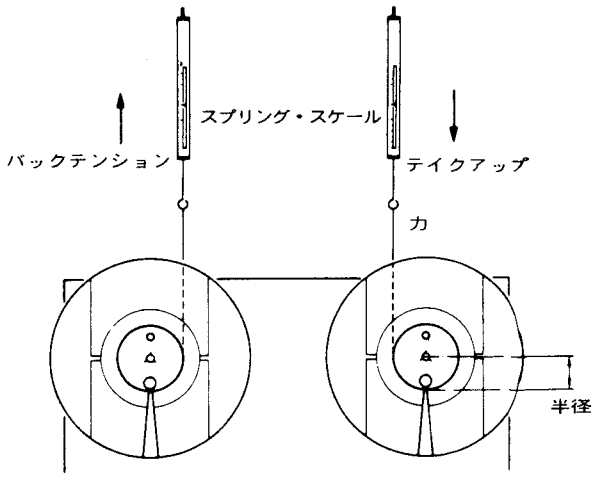


図1－5

1.5.2 バック・テンションの調整

1. ゴムベルトを使用し、右テンション・アームを上方に保持する。
2. 7インチの空リールを左側供給リール・テーブルに装着する。糸の先端にスプリング・スケールを取り付ける。
3. テープ・デッキを再生モードにする。
4. スプリング・スケールを一定の速度と力で図2－5のように上方に引っ張り、このときのスプリング・スケールの読みを記録し、トルクを計算する。スプリング・スケールを引き上げるとき、糸がリールのフランジと接触しないように注意すること。
5. トルクの適正範囲は220g－cmから280g－cmである
6. 適正値が得られないときは、モータの調整用可変抵抗R802のタップ位置を適正トルクが得られるように調整する。（図1－6参照）

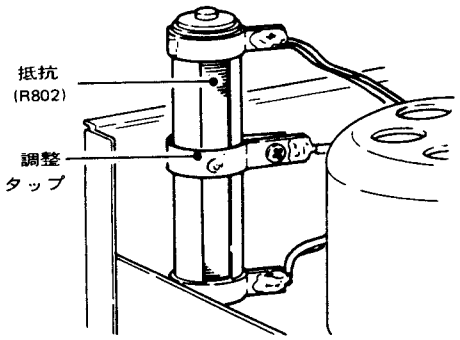


図1－6

1.6 ピンチ・ローラ圧着力調整

1. ゴムバンドを使用し、右テンション・アームを上方に保持する。
2. リールを装着しないでテープ・デッキを再生モードにする。
3. スプリング・スケールを図1－7に示すようにピンチローラ・シャフトにかける。
4. スプリング・スケールをゆっくりと引っ張り、ピンチローラをキャプスタン・シャフトから離し、次にゆっくりとピンチローラをキャプスタン・シャフトに近づけ、ピンチローラが回り始めるときのスプリング・スケールの値を読みます。
   適正値は1.8～2.8kgです。
5. この値の範囲外のときはソレノイドの位置を2本の止めネジをゆるめ調整する。（図1－7参照）

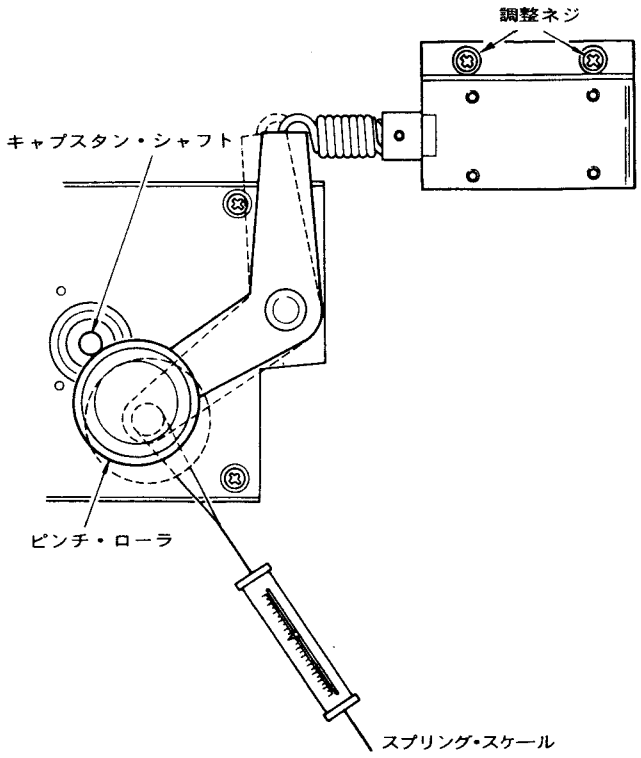


図1－7

1.7 リール・テーブル高さ調整

1. シャーシからリール・テーブルのゴムシートまでの高さは一般的に38mmに調整されていますが、テープの早送りまたは巻戻し走行をテープの巻始めでスタートさせるときにテープがリールのフランジにあたるようなときは微調整をする。
2. リール・テーブルの下側の止めネジをゆるめリール・テーブルを上下に調整する。

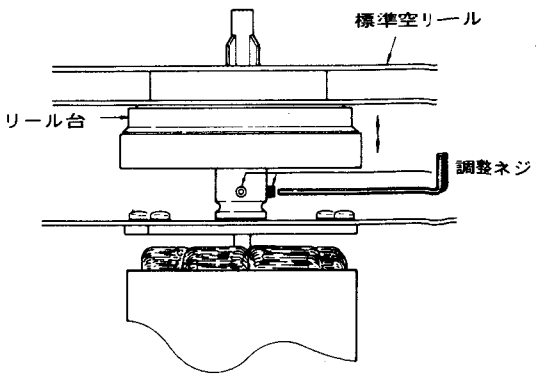


図1－8

1.8 テープ速度調整

1. 周波数カウンタを図1－9のように接持し、TEAC YTT-2003テストテープ(3000Hz)をSPEEDスイッチをHIGHにして再生する。
   このとき周波数カウンタの読みが3000Hz ± 30Hz範囲内であることを確認する。
2. テープ速度が規格値に入っていないときは、テープ・デッキ左側面にあるサーボ基板上の半固定抵抗(High Speed)をまわして調整する。
   (図1－10参照)
3. TEAC YTT-2002のテープを使用し、テープスピードをLOWにして再生し、周波数カウンタの読みが3000Hz ± 30Hz範囲内であることを確認する
4. テープ速度が規格値に入っていないときは、サーボ基板上の半固定抵抗(Low Speed)を調整する。

(注)1. テープ速度の変動巾はテープ全体を通して15Hz以内とする。
2. 調整用半固定抵抗の金属部は活電部になっているので、調整にはプラスチック製などの絶縁型ドライバを使用する。

1.9 ワウ・フラッタ・チェック

1. 図1－9に示すようにワウ・フラッタ・メータを接続する。
2. TEACテスト・テープYTT-2003をテープスピードHIGHで、YTT-2002をテープスピードLOWでそれぞれ再生し、ワウ・フラッタが巻始め巻終り共に下表の規格内に入っていることを確認する。
3. 次にTEACテスト・テープYTT-8013を使用し、3000Hzの信号をテープの巻始めおよび巻終り部分にテープスピードHIGHおよびLOWで録音し、それぞれの録音部分を再生しワウ・フラッタを同様に測定し、下表の規格内に入っていることを確認する。

規　格	再　生		録　再
	WRMS	(RMS)	WRMS
LOW (9.5 cm/s)	0.1	0.15	0.15
HIGH(19 cm/s)	0.06	0.12	0.08

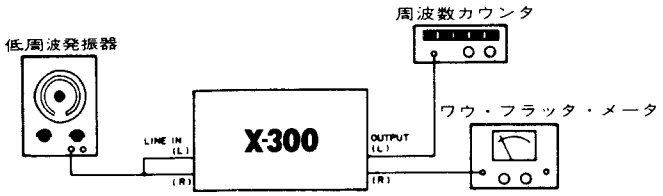


図1－9

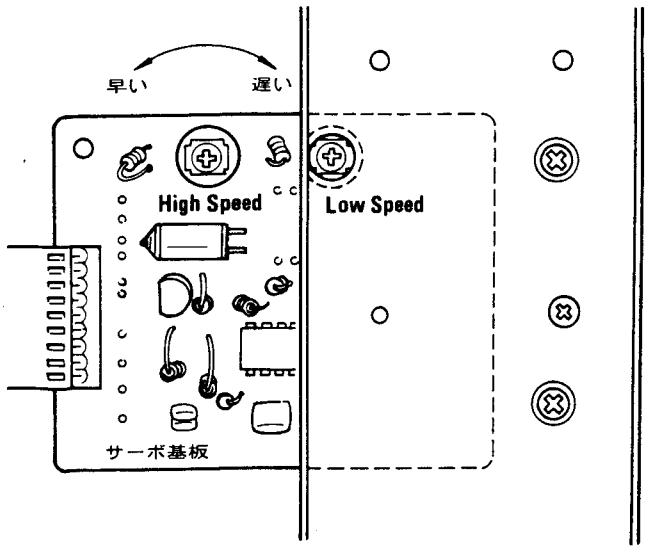


図1－10

1.10 テープヘッドの調整

1.10.1 ヘッド取付配置図

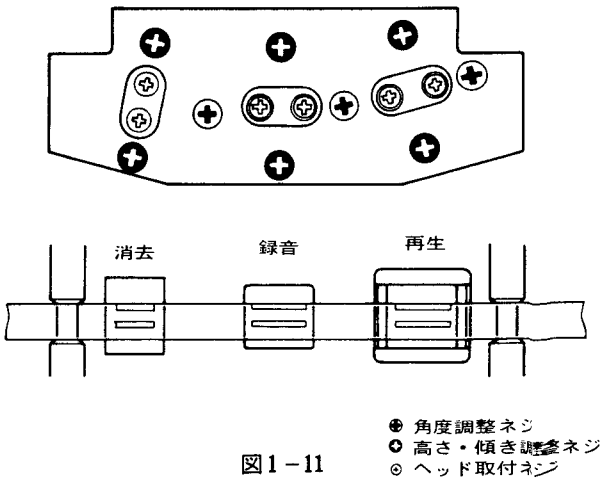


図1－11

1.10.2 調整条件

各ヘッドを次のように調整する。

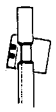
条　　件	悪　例
傾き ヘッドのギャップをテープガイトピンと平行にする。	
角度 ヘッドのギャップをテープ走行方向と垂直にする。	
高さ ヘッド上側コア上端をテープの上端にそろえる。	
接線 点線がテープの表面と垂直になるようにする。	

図1－12

1.10.3 調整手順

1. 目視により消去，録音，再生の各ヘッドの傾きをそれぞれ調整する。
2. 目視により消去，録音，再生の各ヘッドの角度を調整する。
3. TEAC YTT-8013テスト・テープを装着し、再生する。
4. 消去ヘッド・コアはテープの走行中にテープ面方向に0.1mm突き出ていること。この規格が満足されていないときは角度を調整し、再チェックをした後必要があれば傾きおよび高さを調整する。
5. 走行するテープの上方に黄銅色のスペーサがわずかに(うすい鉛筆の線位)見えるように録音および再生ヘッドの高さを調整する。このとき調整ネジは前の調整をくるわすことのないように同一の角度だけまわすこと。
6. 必要ならばテープの走行中にヘッドの接線面の調整をする。

1.11 周波数切替

周波数を切替える場合は必ず電源プラグをＡＣコンセントから抜いてから行うこと。

1. デッキの上面および側面をカバーしている金属カバーを各面のネジ3個を外して取り除くと周波数切替ジャンパー・プレートが見えます。

周波数切替

図1－13に示すように周波数切替用のジャンパ・プレートを止めているネジを外し、希望する周波数端子にジャンパ・プレートを固定する。

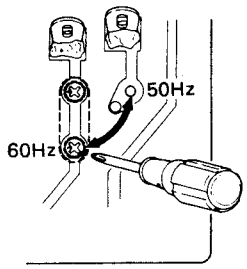


図1－13

1.12 給油

給油は1000時間使用ごとに、あるいはデッキがしばしば使用される場合1年ごとに必要です。TEACスピンドル・オイル(TEAC　TZ-255キット)または同種類のオイルを使用すること。給油は下記の場所に対して行い、その他の場所について通常必要ありません。

1. テープデッキを水平位置にする。
2. それぞれのスピンドルに2～3滴給油する（キャプスタンおよびリール・モータは除く）。綿棒等を使用しオイルを均等にならす。
3. キャプスタンおよびリール・モータについては2～3滴下記の表示個所に給油し、その他の場所に給油しないこと。
4. 給油の後、油が完全に吸収されるように1―2時間テープデッキを動作させる。

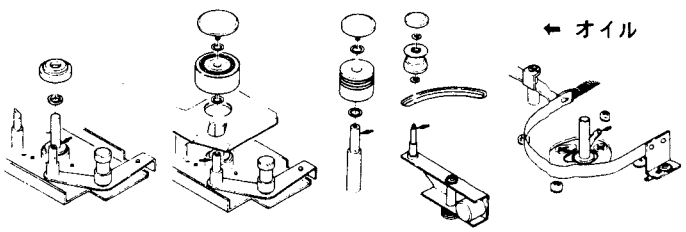


図1－14

2．アンプ部の調整とチェック

注

1. 調整およびチェックを行う前にテープ走行通路全体を清潔にし、消磁する。
2. 調整およびチェックは一般的に左チャネル、次に右チャネルの順序で行う。二つの回路番号、例えばR121/R221はそれぞれ左チャネル／右チャネル用を示す。
3. dBの基準値は775mV＝0dBである。
   従って0dB＝1Vで較正されたメータを使用する場合は換算する必要があります。
4. オーデオレベルメータ(AC・VTVM等)は入力インピーダンスが1MΩ以上の高いものを使用する。
5. テスト・テープとTAPE SELECTORスイッチは次のように一致させること。

テスト・テープ	TAPE SELECTOR	SPEED	備考
YTT-1003	LH(I/II)	HIGH	再生用
YTT-1002	LH(I/II)	LOW	
YTT-1053	EE	HIGH	
YTT-1052	EE	LOW	
YTT-8013	LH・II	HIGH・LOW	録音用
YTT-8053	EE	HIGH・LOW	

2.1 電源チェック

1. DC電圧計を録再基板のU102のピン15に接続する。
2. DC電圧計の読みは＋12Vであること。
   (図2－1参照)

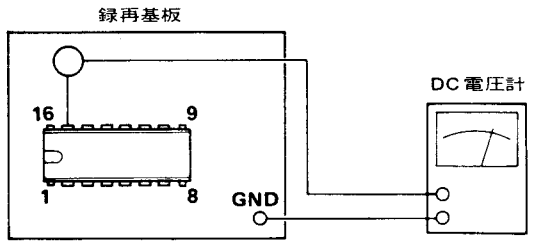


図2－1

2.2 モニタ系 (1)

調整項目	準備・設定	入力信号	調整個所	測定個所・調整値	備考
1．出力レベル	MONITORスイッチ SOURCE OUTPUTつまみ MAX LINEつまみ MAX	LINE IN 400Hz/－22dB (61.5mV)	R123/R223	OUTPUT端子 ＋1dB(869mV)	図2-2参照
	MONITORスイッチ SOURCE LINEつまみ MAX	LINE IN 400Hz/－22dB (61.5mV)	OUTPUTつまみレベル差が生じた場合は高い方の半固定(R123又はR223)を微調整する。	OUTPUT端子 －5dB(436mV)	図2-2参照
2．VUメータ	MONITORスイッチ SOURCE LINEつまみ MAX	LINE IN 400Hz/－22dB (61.5mV)	R131/R231	メータ指示 0VU	図2-2参照

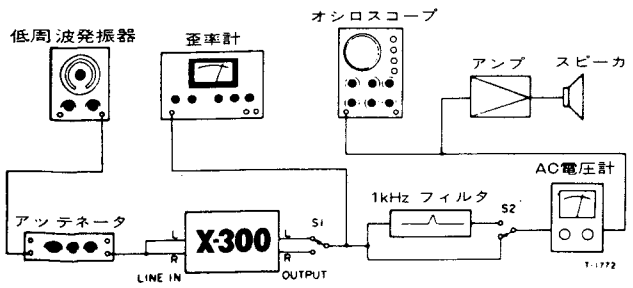


図2－2 接続図

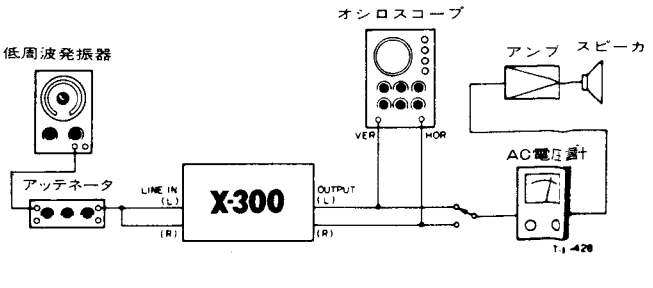


図2－3 接続図

2.3 再生系

調整項目	準備・設定	入力信号	調整個所	測定個所・調整値	備考
3．再生 ヘッド・アジマス調整	MONITORスイッチ TAPE TAPE SPEED スイッチ HIGH	YTT-1003 (16kHz/−10dB)	再生ヘッドの角度調整ネジ (図1-11)	OUTPUT端子 位相差 45°以内	図2-3参照
4．再生レベル・セット	OUTPUTつまみ 規定位置 TAPE SPEED スイッチ HIGH モード PLAY	YTT-1003 (400Hz/0dB)	R111/R211	OUTPUT端子 −5dB (436mV)	図2-2参照
5．VUメータ	同上	YTT-1003 (400Hz/0dB)	チェック	VUメータ 0VU ±0.5VU	図2-2参照
6．再生周波数特性	MONITORスイッチ TAPE SPEEDスイッチ HIGH モード PLAY	YTT-1003(LH) YTT-1053(EE)	R116/R216(LH) R114/R214(EE)	図2-6参照	図2-2参照
	SPEEDスイッチ LOW 〃	YTT-1002(LH) YTT-1052(EE)	R120/R220(LH) R118/R218(EE)	図2-7参照	図2-2参照
7．再生S/Nチェック	規定再生状態 MONITORスイッチ TAPE モード PLAY SPEED HIGH LOW	テープを装着しないで PLAY状態にする.	チェック	OUTPUT端子 LH { 49dB以上(HIGH) 47dB以上(LOW) EE { 51dB以上(HIGH) 49dB以上(LOW)	図2-2参照 規定出力−5dB を規準レベルとする.

2.4 モニタ系 (2)

調整項目	準備・設定	入力信号	調整個所	測定個所・調整値	備考
8．MIC最小入力レベルチェック	MONITORスイッチ SOURCE OUTPUTつまみ MAX MICつまみ MAX LINEつまみ MIN	MIC 400Hz/−70dB (245μV)	チェック	OUTPUT端子 −5dB±3dB (308mV〜615mV)	図2-2参照 但し (LINE IN→MIC)
9．PHONES出力レベルチェック	MONITORスイッチ SOURCE MICつまみ MIN LINEつまみ MAX	LINE IN 400Hz/−22dB (61.5mV)	チェック	PHONESジャック −24dB +4dB −0dB (48mV〜78mV)	図2-5参照 8Ω負荷

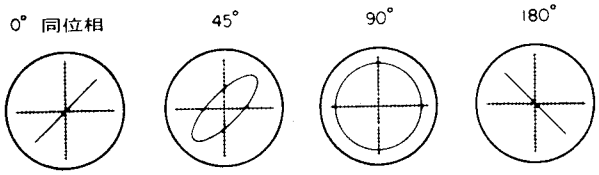


図 2－4 位相の確認

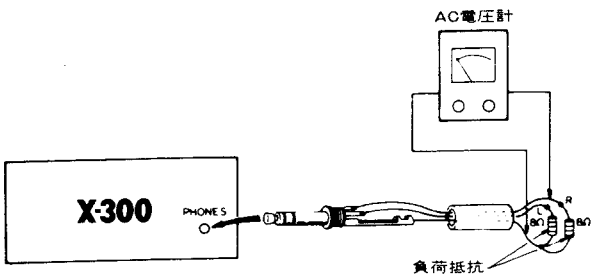


図 2－5 接続図

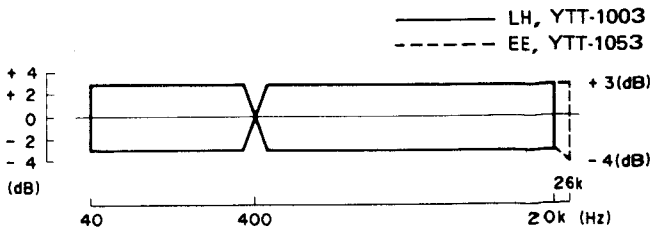


図 2－6 再生周波数特性(HIGH)

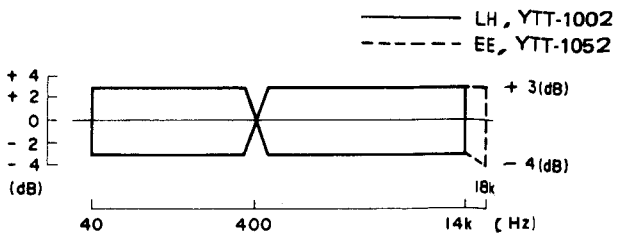


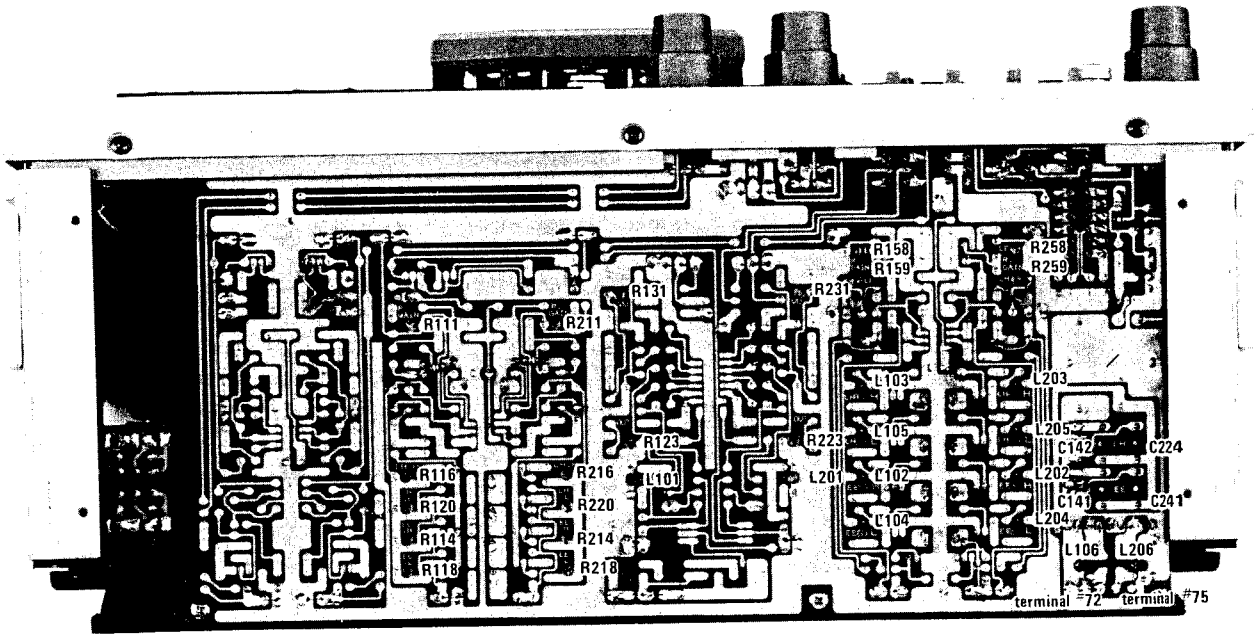
図 2－7 再生周波数特性(LOW)

2.5 録音系

(測定個所は第10項を除きOUTPUT端子とする)

調整項目	準備・設定	入力信号	調整個所	測定個所・調整値	備考
10. バイアス・トラップ調整	モード REC/PAUSE	無信号	L106/L206	72/75 バイアス漏れ最小	バイアス周波数 100kHz±5kHz
	モード REC/PAUSE MONITORスイッチ TAPE	同上	L101/L201	OUTPUT端子 バイアス漏れ最小	
11. 録音ヘッド・アジマス調整	MONITORスイッチ TAPE モード REC	7kHz/−22dB (6.15mV)	録音ヘッド角度調整ネジ	位相：45°以内 図2-4参照	図2-3参照
12. バイアス・セット	テープ YTT-8013 モード REC SPEEDスイッチ LOW MONITORスイッチ TAPE	400Hz, 7kHz/−22dB (61.5mV)	C141/C241(LH-II) C142/C242(EE)	OUTPUT端子 400Hzと7kHzが同一レベル	図2-2参照
13. 録音レベル・セット	同上，ただし SPEEDスイッチ HIGH LINEつまみ MAX	400Hz/−22dB (61.5mV)	R158/R258(LH-II) R159/R259(EE)	−5dB (436mV)	図2-2参照
14. 録再周波数特性	同上	40Hz〜30kHz −32dB (19mV)	L102/L202(LH-II) L103/L203(EE)	図2-8参照	図2-2参照
	同上，ただし SPEEDスイッチ LOW	40Hz〜22kHz −42dB (6.15mV)	L104/L204(LH-II) L105/L205(EE)	図2-9参照	
15. 総合S/Nチェック	テープ YTT-8013(LH-II) YTT-8053(EE) LINEつまみ MIN	無信号	チェック	LH.II { 47dB(HIGH) 45dB(LOW) EE { 49dB(HIGH) 47dB(LOW)	規定録再出力レベル(−5dB)を基準とする. 図2-2参照
16. 消去率チェック	テープ YTT-8053 SPEEDスイッチ HIGH LINEつまみ MAX	1kHz/−12dB (195mV, +10VU)	チェック	−70dB以上	図2-2参照 1kHz B.P.F使用
17. REC MUTE効果チェック	同上	1kHz/−12dB (195mV, +10VU)	チェック	−65dB以上 1kHzを録音し，途中でREC MUTEモードにする.このテープを再生したときの信号部分とMUTE部分との出力レベルの差.	図2-2参照 1kHz B.P.F使用
18. チャネル間セパレーション・チェック (L→R)	規定録音状態	LINE IN Lch:1kHz/−22dB (61.5mV) Rch:無信号	チェック	Lch再生レベルを基準とし、Rchとの出力レベル差 50dB以上	
19. チャネル間セパレーション・チェック (R→L)	同上	Rch:1kHz/−22dB (61.5mV) Lch:無信号	チェック	Rch再生レベルを基準とし，Lchとの出力レベル差 50dB以上	
20. トラック間クロストーク・チェック	同上	LINE IN Lch:無信号 Rch:125Hz/−22dB (61.5mV)	チェック	録音されたトラックを再生したときの出力信号を基準レベルとする．テープを反転して再生したときのRch出力レベルと基準レベルとの差 40dB以上	図2-2参照
21. 総合歪率チェック	LINEつまみ MAX MICつまみ MIN	LINE IN 1kHz/−22dB (61.5mV)	チェック	1%以下	図2-2参照

アンプ部の調整個所



調整個所（Lch/Rch）	調整項目
C141 / C241	録音バイアス（LHⅡ）
C142 / C242	録音バイアス（EE）
L101 / L201	バイアス・トラップ（OUTPUT）
L102 / L202	録音イコライザ（HIGH, LHⅡ）
L103 / L203	録音イコライザ（HIGH, EE）
L104 / L204	録音イコライザ（LOW, LHⅡ）
L105 / L205	録音イコライザ（LOW, EE）
L106 / L206	バイアス・トラップ
R111 / R211	再生レベル
R114 / R214	再生イコライザ（HIGH, EE）
R116 / R216	再生イコライザ（HIGH, LH）
R118 / R218	再生イコライザ（LOW, EE）
R120 / R220	再生イコライザ（LOW, LH）
R123 / R223	モニタ出力レベル
R131 / R231	VUメータ・レベル
R158 / R258	録音レベル（LHⅡ）
R159 / R259	録音レベル（EE）

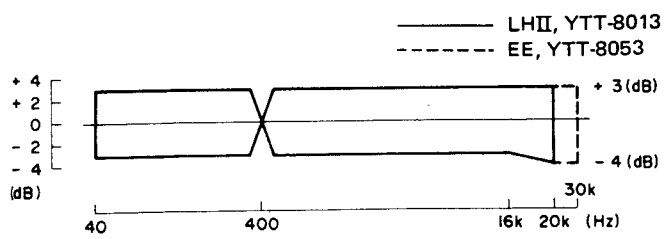


図 2 － 8　録再周波数特性（HIGH）

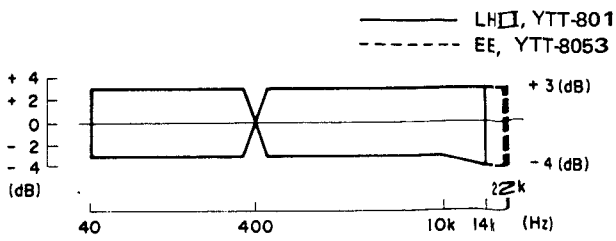
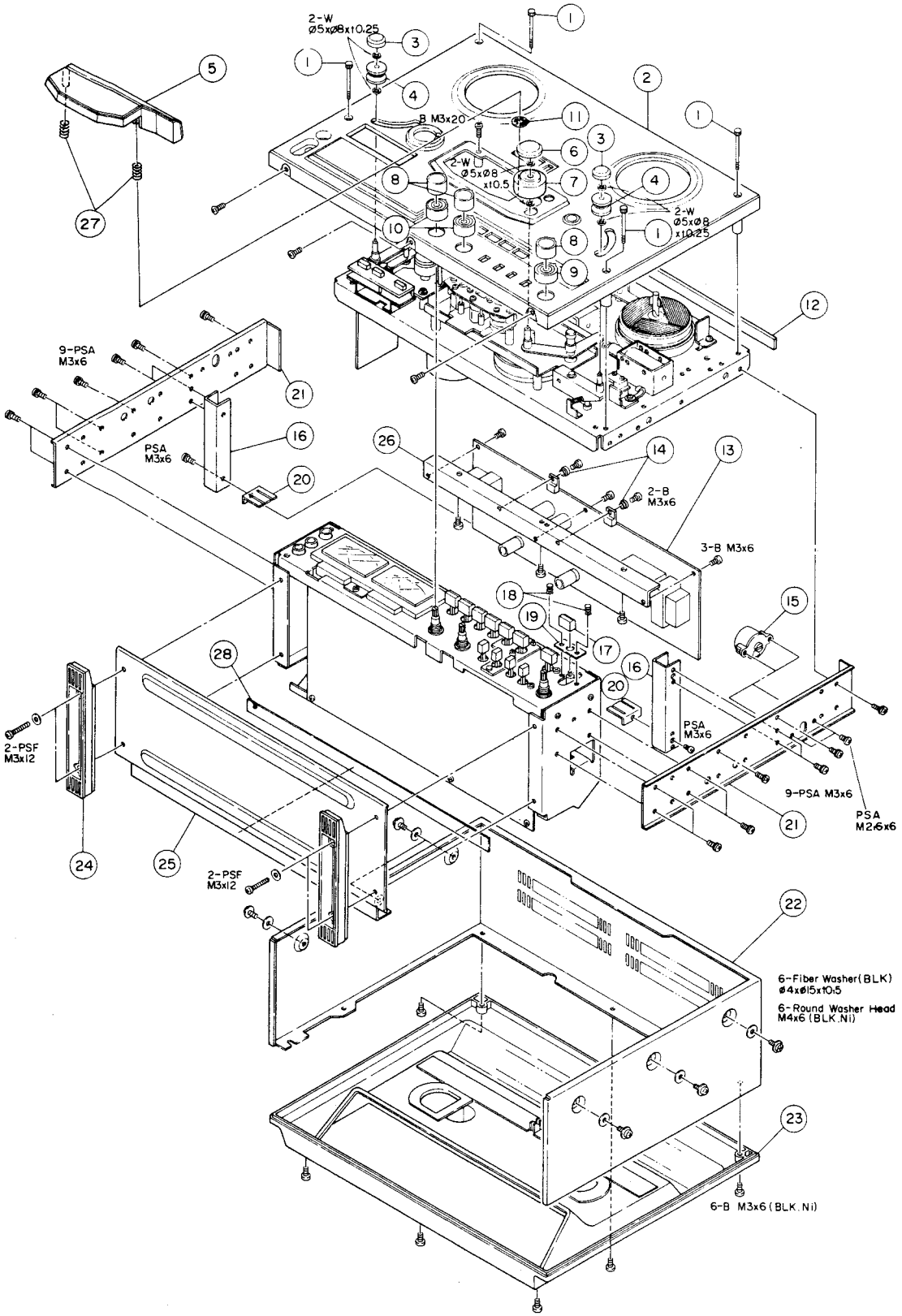


図 2 － 9　録再周波数特性（LOW）

4 EXPLODED VIEWS AND PARTS LIST

EXPLODED VIEW - 1



EXPLODED VIEW - 1

REF. NO.	PARTS NO.	DESCRIPTION	COMMON MODELS	REMARKS
1 - 1		Screw, Trim; M3 x 35 (Ni)		
1 - 2	*5800522000	Panel Assy, Front; C (X-300R)		
	*5800521000	Panel Assy, Front; A (X-300)		
1 - 3	5800311900	Cap, Tension Roller	32	
1 - 4	5504843000	Roller Assy, Tension		
1 - 5	*5800522400	Housing Assy, Head; C (X-300R)		
	*5800522200	Housing Assy, Head; A (X-300)		
1 - 6	5800170701	Cap, Pinch Roller	X-3R	
1 - 7	5800173701	Pinch Roller	X-3R	
1 - 8	5800523400	Knob, A		
1 - 9	5800523600	Knob, C		
1 - 10	5800523500	Knob, B		
1 - 11		Ring, CS; ϕ6		
1 - 12	*5555887001	Cushion, Case	X-10R	
1 - 13	*5200018731	PCB Assy, POWER SUPPLY [U, C]	X-3R	
	*5200018743	PCB Assy, POWER SUPPLY [E, UK, A]	X-3R	
	*5200018753	PCB Assy, POWER SUPPLY [GE, J]	X-3R	
1 - 14	*5033295000	Tube, Insulating		
1 - 15	*5131007001	Selector, Voltage [GE]		
1 - 16	*5555943000	Support, Chassis		
1 - 17	5800524500	Button, D		
1 - 18	5534118000	Rivet, Push	A-400	
1 - 19	*5800019100	Guide, Joint Bar		
1 - 20	*5800079900	Bracket, PCB; C	X-3	
1 - 21	*5553366002	Frame, Side		
1 - 22	*5551047001	Bonnet		
1 - 23	*5502267001	Cover Assy, Rear		
1 - 24	*5533260000	Leg, Case		
1 - 25	*5553367001	Cover, Bottom		
1 - 26	*5553362000	Bracket, POWER SUPPLY PCB		
1 - 27	5524292001	Spring, Stud		
1 - 28	*5555947000	Plate, Insulator; A		

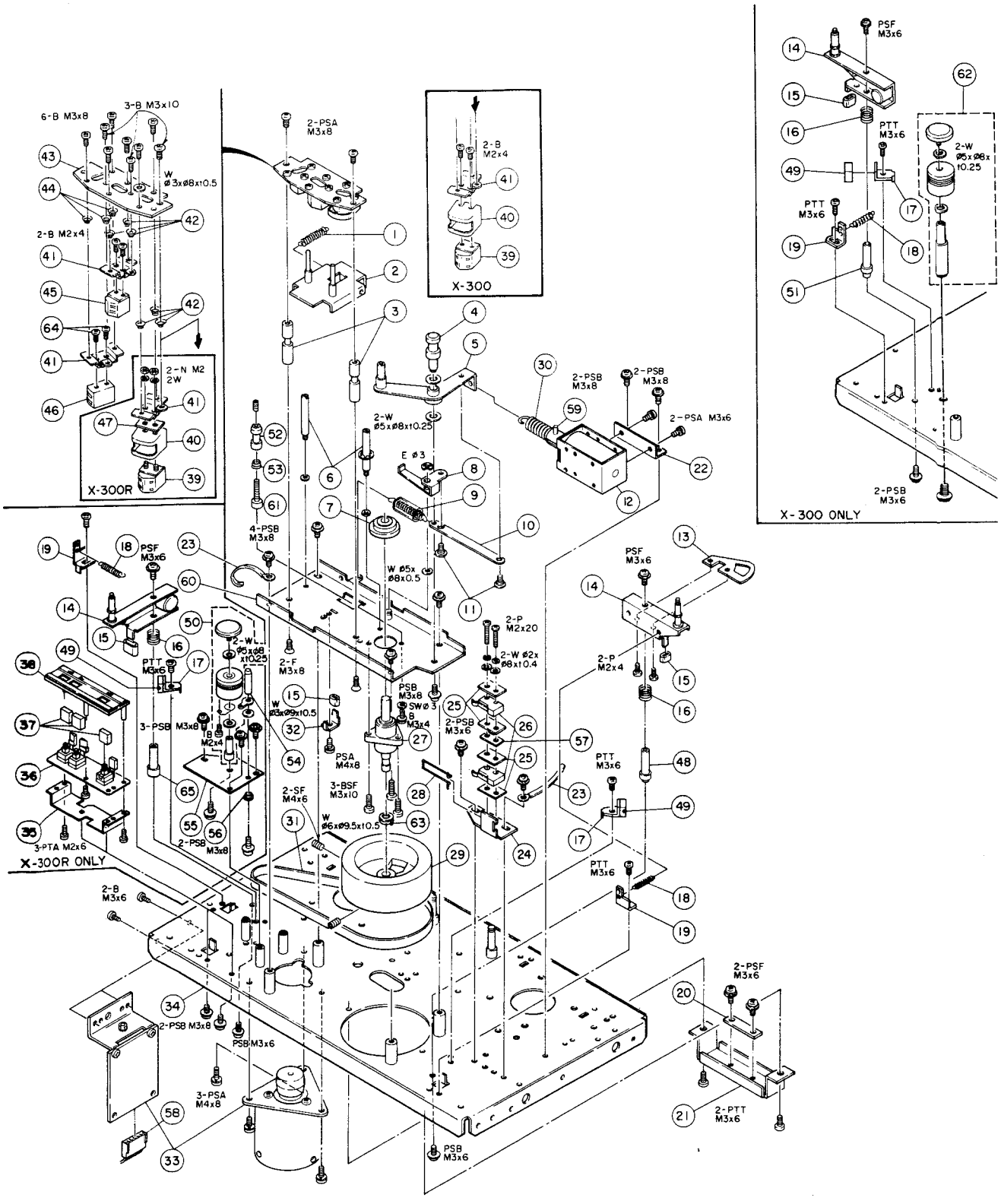
INCLUDED ACCESSORIES

REF. NO.	PARTS NO.	DESCRIPTION	COMMON MODELS	REMARKS
	5350008500	Cord Assy, In-Output Connection	X-3	
	5085008300	Empty Reel, 7 inch		
	*5062962000	Splicing Tape		
	*5101337100	Open Reel Supplement [U]		
	*5101708000	Open Reel Supplement [All except U]		
	*5700048600	Owner's Manual [J] (X-300)		
	*5700048700	Owner's Manual [All except J]		

Parts marked with *require longer delivery time.

[U]: U.S.A. [C]: CANADA [GE]: GENERAL EXPORT
[A]: AUSTRALIA [E]: EUROPE [UK]: U.K.
[J]: JAPAN

EXPLODED VIEW - 2



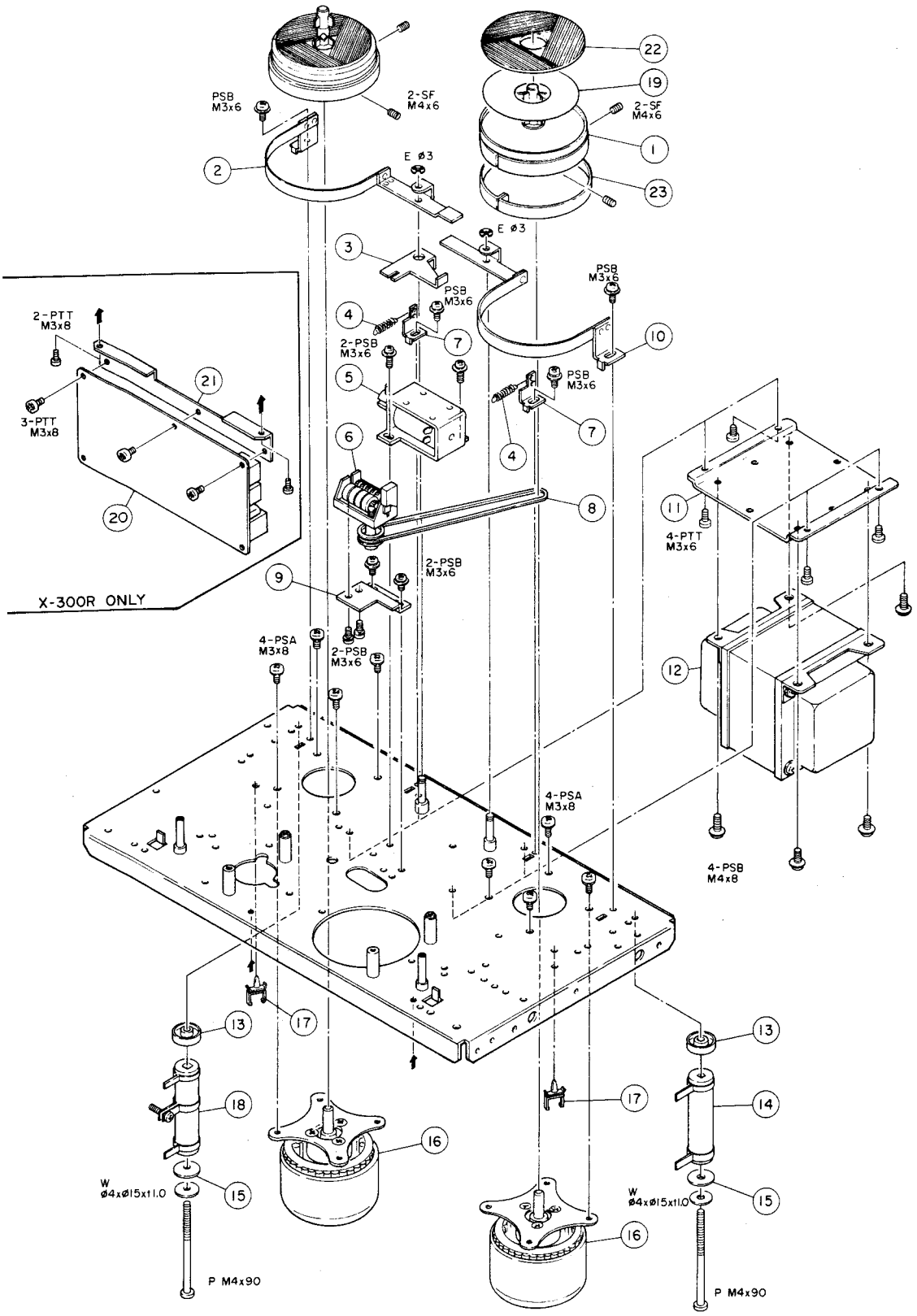
EXPLODED VIEW - 2

REF. NO.	PARTS NO.	DESCRIPTION	COMMON MODELS	REMARKS
2 - 1	5524287000	Spring, Lifter Return		
2 - 2	*5504836001	Plate Assy, Lifter Base		
2 - 3	*5545181000	Guide, Tape		
2 - 4	*5800170400	Pole, Guide; (B) (X-300R)	X-3R	
	*5545178000	Pole, Guide (X-300)		
2 - 5	*5504835000	Arm Assy, Pinch Roller		
2 - 6	*5545190000	Stud, Housing		
2 - 7	5545175000	Cap, Dust		
2 - 8	*5555925000	Arm, Joint; A		
2 - 9	5524288000	Spring, Return		
2 - 10	*5555926000	Arm, Joint; B		
2 - 11	*5581056000	Screw, Shoulder; A	A-304	
2 - 12	5313001600	Solenoid, Pinch Roller		
2 - 13	*5555928000	Cam, Micro Switch Actuating		
2 - 14	*5504842002	Arm Assy, Tension	X-3	
2 - 15	*5534850000	Cushion, Stopper		
2 - 16	5524289000	Spring, Bias		
2 - 17	*5555930000	Stopper Arm		
2 - 18	5524106000	Spring, Return	A-6700	
2 - 19	*5555929000	Hook, Spring		
2 - 20	*5555921000	Plate, Thrust		
2 - 21	*5555920001	Angle, Thrust Plate		
2 - 22	*5800171000	Bracket, Solenoid		
2 - 23		Clamper, Cord; A		
2 - 24	*5555932000	Bracket, Micro Switch		
2 - 25	*5800208900	Plate, Insulating		
2 - 26	5301455500	Switch, Micro		
2 - 27	5504832001	Capstan Assy		
2 - 28	*5524290000	Bar, Actuating		
2 - 29	5800397200	Flywheel	38	
2 - 30	5524286001	Spring, Pressure		
2 - 31	5534468000	Belt, Capstan	A-6100M	
2 - 32	*5555924000	Stopper, Lifter		
2 - 33	7105020001	Motor Assy, Capstan	X-3R	
2 - 34	*5800173601	Chassis Assy, Main (X-300R)		
	*5502265005	Chassis Assy, Main (X-300)		
2 - 35	*5800170300	Base, Direction (X-300R)		
2 - 36	*5200036810	PCB Assy, Direction (X-300R)		
2 - 37	5800524000	Button, A (X-300R)	X-3	
2 - 38	*5800524300	Escutcheon, Direction; A (X-300R)		
2 - 39	5378901200	Head, Playback (X-300R)	X-3R	
	5378300700	Head, Playback (X-300)	X-20R A-6600	
2 - 40	5554949000	Case, Shield; B	A-2300	
2 - 41	5013437100	Bracket, Head	A-5300	
2 - 42	5520182000	Spring, D		
2 - 43	*5555927000	Plate, Head Base		
2 - 44	5022050000	Spring, B		
2 - 45	5378300600	Head, Record	X-20R	
2 - 46	5378300800	Head, Erase	X-20R	
2 - 47	*5550151100	Spacer, Head; A (X-300R)	A-4300	
2 - 48	*5800048300	Shaft, Tension Arm		
2 - 49	*5534851000	Damper, Arm		
2 - 50	5800171103	Roller Assy, Sensing (X-300R)	X-3R	
2 - 51	*5800299100	Shaft, Tension	38	
2 - 52	*5800170501	Guide, REV (X-300R)		
2 - 53	5022050000	Spring, B (X-300R)		
2 - 54	*5800171700	Pole, Guide (X-300R)	X-3R	
2 - 55	*5800171502	Base, Roller (X-300R)	X-3R	
2 - 56	*5033295000	Tube, Insulating (X-300R)		
2 - 57	*5800209000	Spacer, Micro Switch		
2 - 58	*5122172000	Connector Socker, 10P		
2 - 59		Pin, Spring ϕ3 x 12		
2 - 60	*5504831001	Plate Assy, Capstan Base		
2 - 61	*5800170601	Base, Guide (X-300R)	X-3R	
2 - 62	5800312001	Roller Assy, ¼" (X-300)	34	
2 - 63	*5800397300	Washer, Thrust	34	
2 - 64	*5581071000	Screw, M2 x 4		

Parts marked with *require longer delivery time.

[U]: U.S.A. [C]: CANADA [GE]: GENERAL EXPORT
[A]: AUSTRALIA [E]: EUROPE [UK]: U.K.
[J]: JAPAN

EXPLODED VIEW - 3



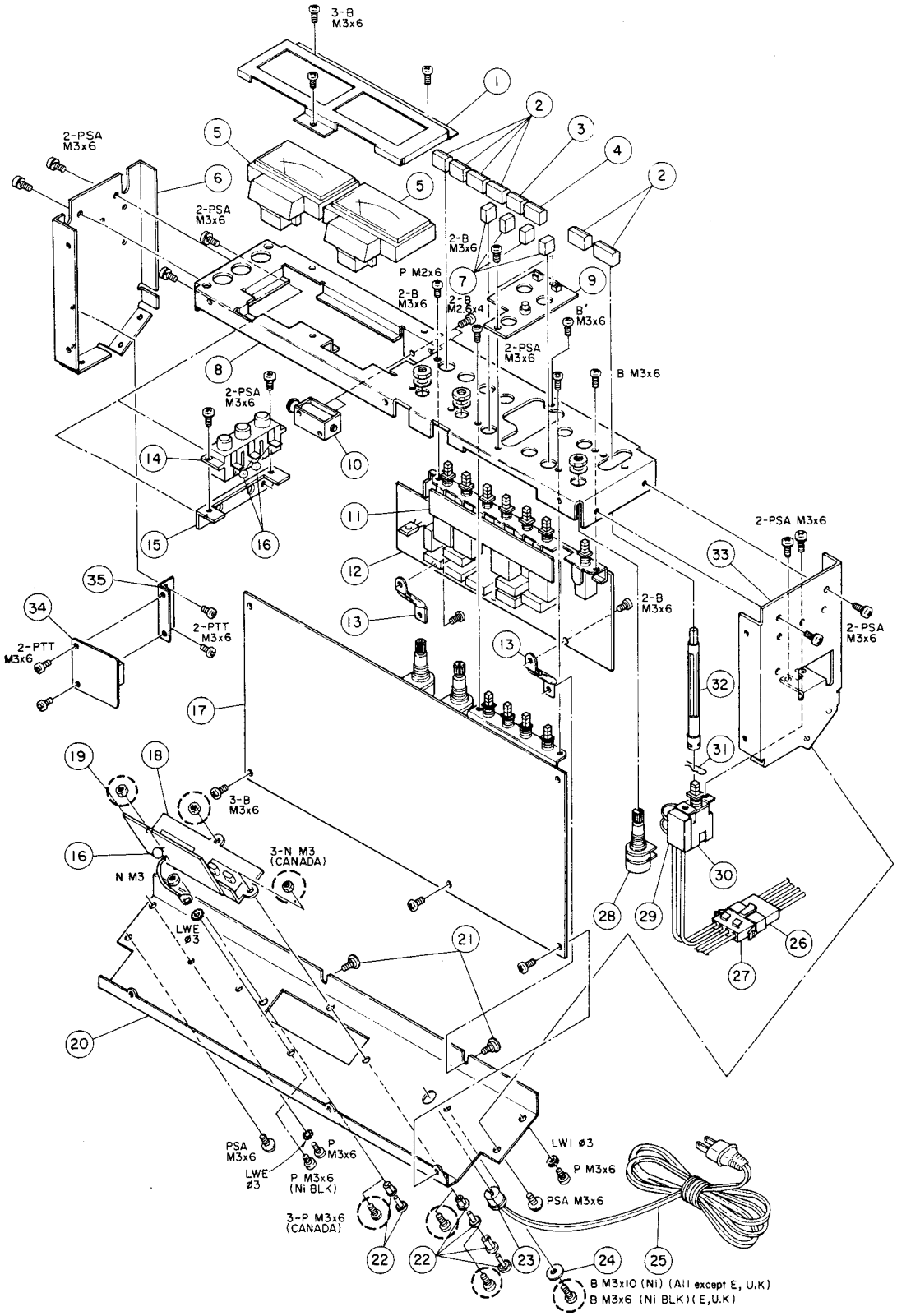
EXPLODED VIEW - 3

REF. NO.	PARTS NO.	DESCRIPTION	COMMON MODELS	REMARKS
3 - 1	5504852000	Table Assy, Reel		
3 - 2	*5504847000	Band Assy, Brake; L		
3 - 3	*5555939000	Lever, Brake Actuating		
3 - 4	5524291000	Spring, Brake		
3 - 5	5313001501	Solenoid, Brake		
3 - 6	5058515000	Counter (X-300R)	A-4300	
	5058509000	Counter (X-300)		
3 - 7	*5555929000	Hook, Spring		
3 - 8	5534853000	Belt, Counter		
3 - 9	*5555940000	Bracket, Counter		
3 - 10	*5504848000	Band Assy, Brake; R		
3 - 11	*5555919000	Bracket, Transformer		
3 - 12	⚠*5320011801	Transformer, Power [U, C] (X-300R)	X-3R	
	⚠*5152240000	Transformer, Power [U, C] (X-300)		
	⚠*5320011900	Transformer, Power [GE] (X-300R)	X-3R	
	⚠*5320002500	Transformer, Power [GE] (X-300)		
	⚠*5320012000	Transformer, Power [E, UK, A] (X-300R)	X-3R	
	⚠*5320002400	Transformer, Power [E, UK, A] (X-300)		
	⚠*5320000201	Transformer, Power [J] (X-300)		
3 - 13	*5534585000	Holder, Resistor	A-6600	
3 - 14	⚠ 5241832500	Resistor, Nonflammable; 1.5kΩ		
3 - 15		Washer, Bakelite; φ4 x φ17 x t1		
3 - 16	7104601001	Motor, Reel		
3 - 17	*5033258000	Clamper, Cord; E	A-450	
3 - 18	⚠ 5181597000	Resistor, Nonflammable; 250Ω		
3 - 19	5800016200	Sheet, Cement		
3 - 20	*5200036700	PCB Assy, REVERSE (X-300R)		
3 - 21	*5800170900	Bracket, REVERSE PCB (X-300R)		
3 - 22	5800080100	Sheet, Reel		
3 - 23	5534852000	Felt, Brake		

Parts marked with *require longer delivery time.

[U]: U.S.A. [C]: CANADA [GE]: GENERAL EXPORT
[A]: AUSTRALIA [E]: EUROPE [UK]: U.K.
[J]: JAPAN

EXPLODED VIEW - 4



EXPLODED VIEW - 4

REF. NO.	PARTS NO.	DESCRIPTION	COMMON MODELS	REMARKS
4 - 1	*5800521800	Plate, Meter; A		
4 - 2	5800524500	Button, D		
4 - 3	5800080300	Button, B	X-3	
4 - 4	5800080400	Button, C	X-3	
4 - 5	5296004900	Meter, VU	X-1000R	
4 - 6	*5553364001	Chassis, Side; L		
4 - 7	5800524000	Button, A		
4 - 8	*5552489001	Chassis, Amplifier		
4 - 9	*5200008500	PCB Assy, LED	X-3	
4 - 10	5313002000	Solenoid, Reset		
4 - 11	*5158110000	PCB Assy, CONTROL; B		
4 - 12	*5200019500	PCB Assy, CONTROL; A [All except C]		
	*5200019510	PCB Assy, CONTROL; A [C]		
4 - 13	*5555945000	Bracket, PCB; B		
4 - 14	5124063000	Jack Assy, 3-gang		
4 - 15	*5555946000	Bracket, Jack		
4 - 16	5054204000	Capacitor, Ceramic; 0.01μF 50V		
4 - 17	*5200056003	PCB Assy, REC/PLAY AMPL (X-300R)		
	*5200056012	PCB Assy, REC/PLAY AMPL (X-300)		
4 - 18	5126038000	Termianl Assy, IN/OUTPUT		
4 - 19	*5200031400	PCB Assy, IN/OUTPUT	22-2	
4 - 20	*5552488001	Chassis, Rear		
4 - 21	*5581056000	Screw, Shoulder; A	A-304	
4 - 22	5534118000	Rivet, Push [All except C]		
4 - 23	⚠*5534660000	Strain Relief, AC Power Cord [All except C, UK]		
	⚠*5317001700	Strain Relief, AC Power Cord [C, UK]		
4 - 24	⚠*5555063000	Washer, GND [All except E, UK]		
4 - 25	⚠*5350011100	Cord, AC Power [U, GE]		
	⚠*5350011000	Cord, AC Power [C]		
	⚠*5128077000	Cord, AC Power [E]		
	⚠*5128095000	Cord, AC Power [UK]		
	⚠*5350008400	Cord, AC Power [A]		
	⚠*5128027000	Cord, AC Power [J] (X-300)		
4 - 26	*5122261000	Connector Plug, 4P		
4 - 27	*5122262000	Connector Plug, 4P		
4 - 28	5282705800	Variable Resistor, 100kΩ(A) x 2		
4 - 29	⚠ 5052907000	Spark Killer, 0.01μF + 300Ω/125V [GE, J]		
	⚠ 5052910000	Spark Killer, 0.033μF + 120Ω/125V [U]		
	⚠ 5292002600	Spark Killer, 0.033μF + 120Ω/125V [C]		
	⚠ 5267702500	Spark Killer, 0.0047μF/250V [E, UK, A]		
4 - 30	⚠ 5134122000	Switch, Power [U, C]		
	⚠ 5300019400	Switch, Power [All except U, C, J]		
	⚠ 5134126000	Switch, Power [J] (X-300)		
4 - 31		R-Pin, φ5		
4 - 32	*5534855000	Bar, Joint		
4 - 33	*5553365001	Chassis, Side; R		
4 - 34	*5200036900	PCB Assy, HEAD RELAY (X-300R)		
4 - 35	*5800170800	Bracket, HEAD RELAY PCB (X-300R)		

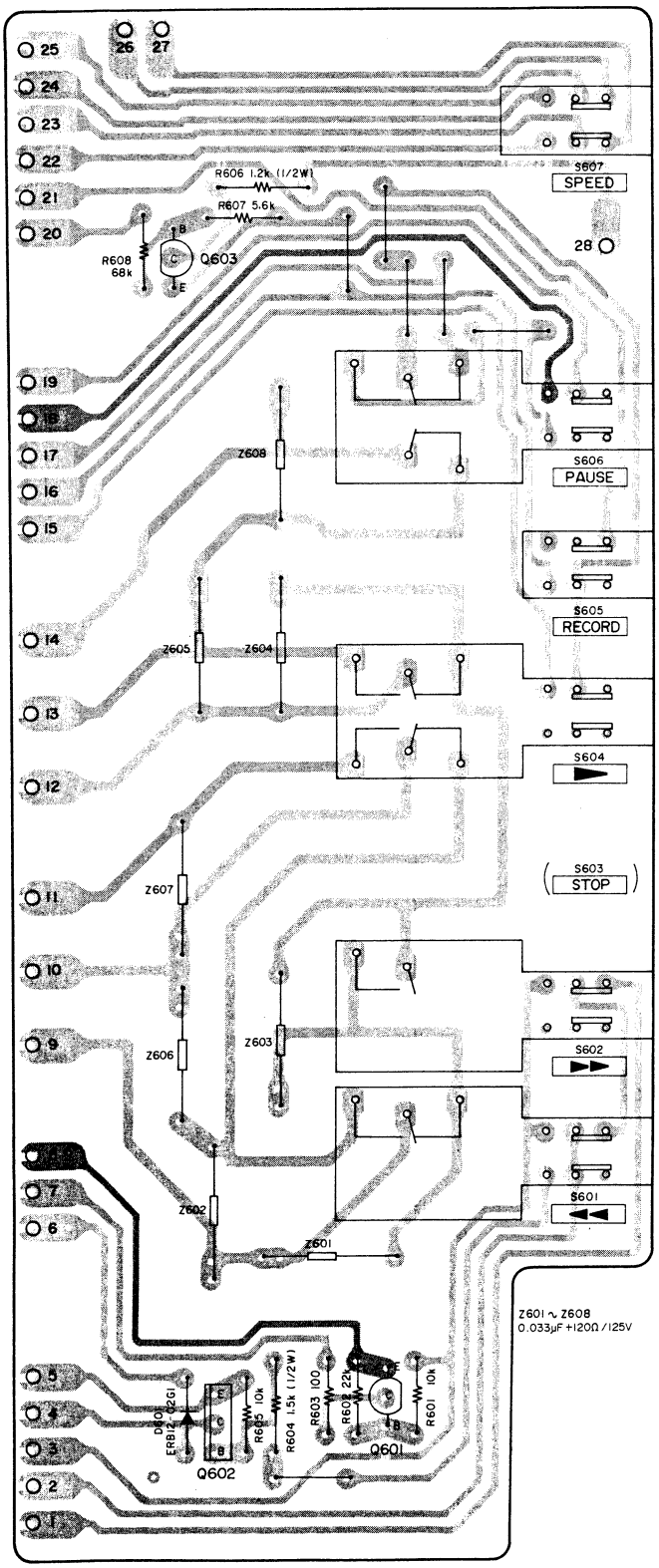
Parts marked with *require longer delivery time.

[U]: U.S.A.
[A]: AUSTRALIA
[J]: JAPAN
[C]: CANADA
[E]: EUROPE
[GE]: GENERAL EXPORT
[UK]: U.K.

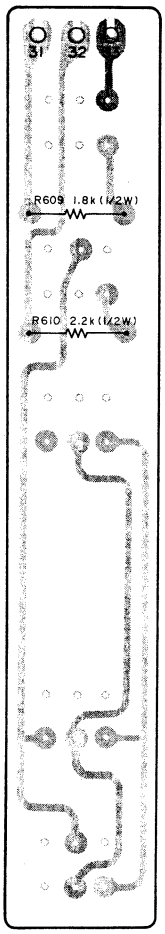
5 PC BOARDS AND PARTS LIST

PC Boards shown viewed from foil side.

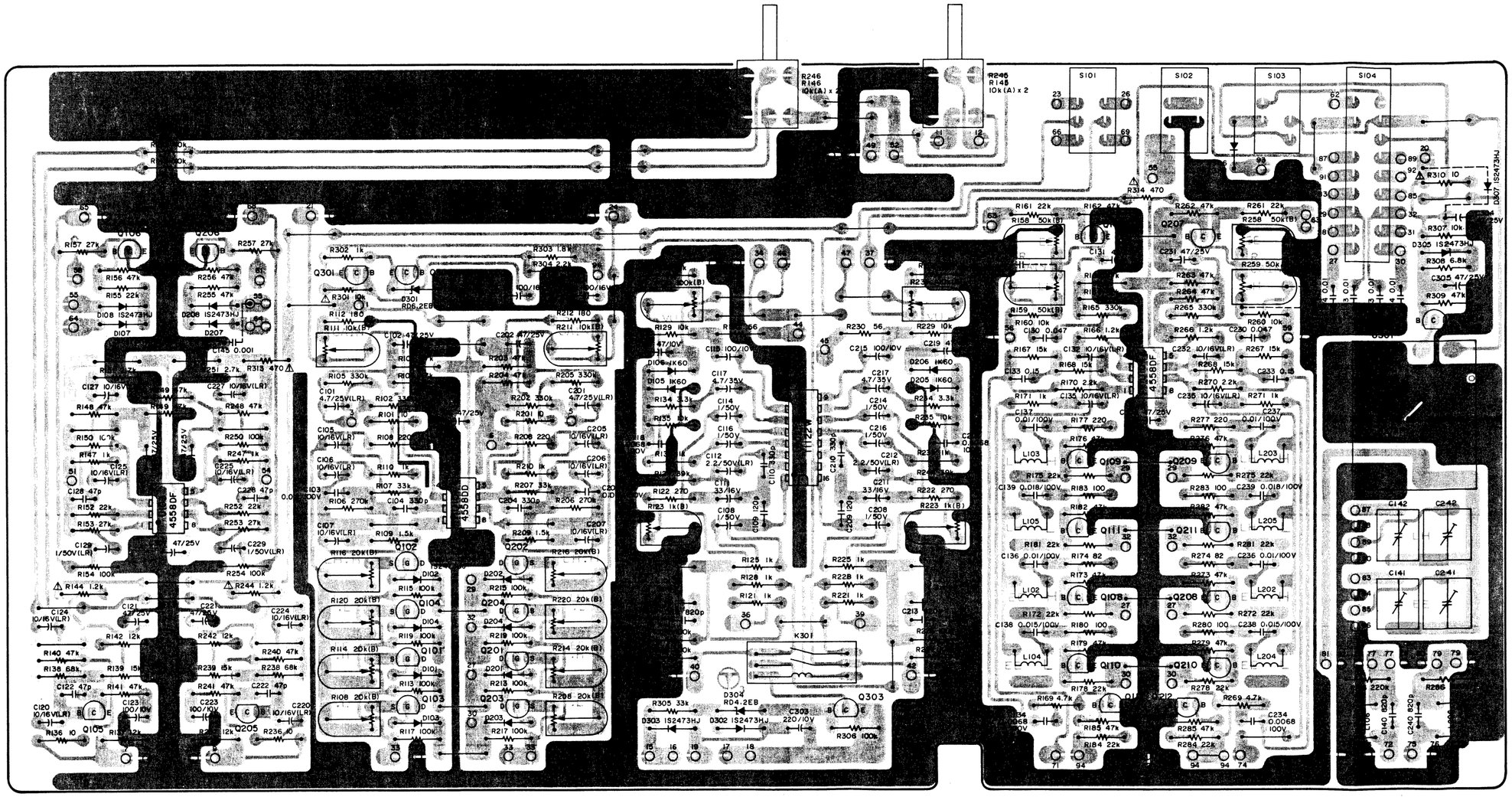
CONTROL PCB A ASSY



CONTROL PCB B ASSY



REC/PLAY AMPL PCB ASSY

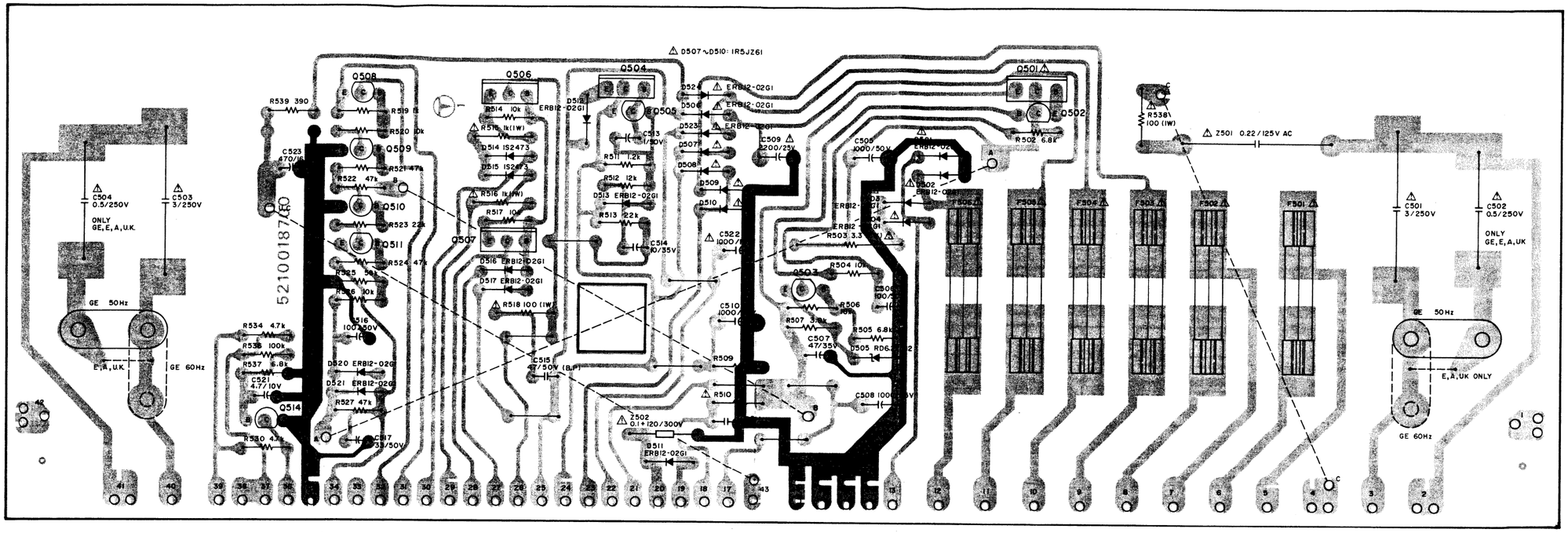


NOTES

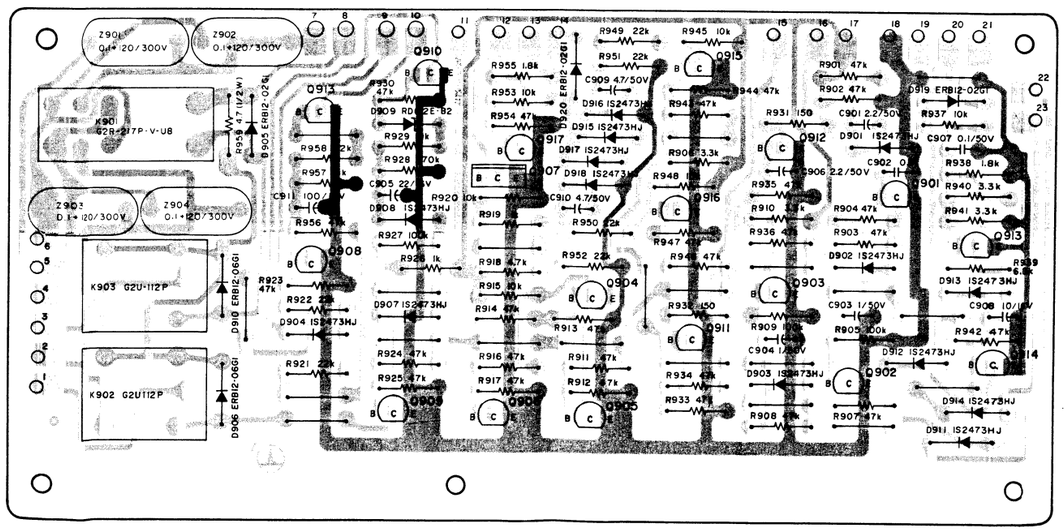
1. The colors used on the PCB illustrations have the following significance:
   - : +B power supply circuit
   - : GND
   - : Other
2. Resistor values are in ohms (k = 1,000 ohms, M = 1,000,000 ohms).
3. All capacitor values are in microfarads (p = picofarads).

X-300R/X-300 X-300R/X-300

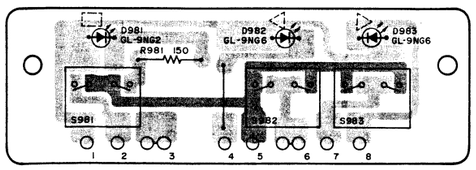
POWER SUPPLY PCB ASSY



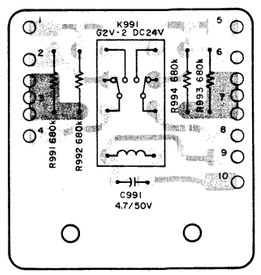
REVERSE PCB ASSY



DIRECTION PCB ASSY



HEAD RELAY PCB ASSY



CONTROL PCB A ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	5200019500	PCB Assy [All except C]
	5200019510	PCB Assy [C]
	5157109000	CONTROL PCB A
	TRANSISTORS	
Q601	5042625000	2SC-1318S
Q602	5145078000	2SD-600F
Q603	5042553000	2SA-733P
	DIODE	
D601	5143243000	ERB12-02G1
	CARBON RESISTORS	
	All resistors are rated ±5% tolerance and ¼W.	
R601	5183106000	10kΩ
R602	5183114000	22kΩ
R603	5183058000	100Ω
R604	5180086000	1.5kΩ ½W
R605	5183106000	10kΩ
R606	5180084000	1.2kΩ ½W
R607	5183100000	5.6kΩ
R608	5183126000	68kΩ
	MISCELLANEOUS	
Z601 ~ Z608 ⚠	5052910000	Spark killer 0.033μF+120/125V [All except C]
Z601 ~ Z608 ⚠	5052914000	Spark killer 0.033μF+120/250V [C]
S601 ~ S607	5134123000	Switch, Push; 7-gang

CONTROL PCB B ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	5158110000	PCB Assy
	5157110000	PCB
R609	5180088000	Carbon resistor 1.8kΩ ½W 5%
R610	5180090000	Carbon resistor 2.2kΩ ½W 5%

REC/PLAY AMPL PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	5200056003	PCB Assy (X-300R)
	5200056012	PCB Assy (X-300)
	5210056002	PCB
	IC'S	
U101	5147028000	JRC-4558D-D
U102	5147053000	HA-11122W
U103, U104	5147024000	JRC-4558D-F
	TRANSISTORS	
Q101, Q201	5145103000	FET, 2SK-68AM
Q102, Q202	5145103000	FET, 2SK-68AM
Q103, Q203	5145103000	FET, 2SK-68AM
Q104, Q204	5145103000	FET, 2SK-68AM
Q105, Q205	5230770100	2SC-2240BL
Q106, Q206	5145185000	2SD-655E
Q107, Q207	5145091000	2SC-945AK
Q108, Q208	5145091000	2SC-945AK
Q109, Q209	5145091000	2SC-945AK
Q110, Q210	5145091000	2SC-945AK
Q111, Q211	5145091000	2SC-945AK
Q112, Q212	5145091000	2SC-945AK
Q301	5042450910	2SC-1384Q
Q302	5145091000	2SC-945AK
Q303	5145091000	2SC-945AK
Q304	5145091000	2SC-945AK
	DIODES	
D101, D201	5143118000	1S2473HJ
D101, D202	5143118000	1S2473HJ
D103, D203	5143118000	1S2473HJ
D104, D204	5143118000	1S2473HJ
D105, D205	5224015400	IK60
D106, D206	5224015400	IK60
D107, D207	5143118000	1S2473HJ
D108, D208	5143118000	1S2473HJ
D109	5143118000	1S2473HJ
D301	5042554000	Zener, RD6.2EB 3%
D302, D303	5143118000	1S2473HJ
D304	5143121000	Zener, RD4.7EB
D305 ~ D307	5143118000	1S2473HJ
	CARBON RESISTORS	
	All resistors are rated ±5% tolerance and ¼W.	
R101, R201	5183034000	10Ω
R102, R202	5183142000	330kΩ
R103, R203	5183122000	47kΩ
R104, R204	5183122000	47kΩ
R105, R205	5183142000	330kΩ
R106, R206	5183140000	270kΩ
R107, R207	5183118000	33kΩ
R108, R208	5183066000	220Ω
R109, R209	5183086000	1.5kΩ
R110, R210	5183082000	1kΩ
R112, R212	5183072000	390Ω
R113, R213	5183130000	100kΩ
R115, R215	5183130000	100kΩ
R117, R217	5183130000	100kΩ
R119, R219	5183130000	100kΩ
R121, R221	5181464000	180Ω
R122, R222	5183068000	270Ω
R124, R224	5183120000	39kΩ
R125, R225	5183082000	1kΩ
R126, R226	5183130000	100kΩ

[U]: U.S.A. [C]: CANADA [GE]: GENERAL EXPORT
[A]: AUSTRALIA [E]: EUROPE [UK]: U.K.
[J]: JAPAN

REF. NO.	PARTS NO.	DESCRIPTION
R127, R227	5183130000	100kΩ
R128, R228	5183082000	1kΩ
R129, R229	5183106000	10kΩ
R130, R230	5183052000	56Ω
R132, R232	5183082000	1kΩ
R133, R233	5183082000	1kΩ
R134, R234	5183094000	3.3kΩ
R135, R235	5183106000	10kΩ
R136, R236	5183034000	10Ω
R137, R237	5183108000	12kΩ
R138, R238	5183126000	68kΩ
R139, R239	5183110000	15kΩ
R140, R240	5183122000	47kΩ
R141, R241	5183050000	47Ω
R142, R242	5183108000	12kΩ
R143, R243	5183106000	10kΩ
R144, R244	⚠5183084000	1.2kΩ
R147, R247	5183082000	1kΩ
R148, R248	5183122000	47kΩ
R149, R249	5183122000	47kΩ
R150, R250	5183130000	100kΩ
R151, R251	5183092000	2.7kΩ
R152, R252	5183114000	22kΩ
R153, R253	5183116000	27kΩ
R154, R254	5183130000	100kΩ
R155, R255	5183122000	47kΩ
R156, R256	5183116000	27kΩ
R157, R257	5183116000	27kΩ
R160, R260	5183106000	10kΩ
R161, R261	5183114000	22kΩ
R162, R262	5183122000	47kΩ
R163, R263	5183122000	47kΩ
R164, R264	5183114000	22kΩ
R165, R265	5183142000	330kΩ
R166, R266	5183084000	1.2kΩ
R167, R267	5183110000	15kΩ
R168, R268	5183110000	15kΩ
R169, R269	5183098000	4.7kΩ
R170, R270	5183090000	2.2kΩ
R171, R271	5183082000	1kΩ
R172, R272	5183114000	22kΩ
R173, R273	5183122000	47kΩ
R174, R274	5183056000	82Ω
R175, R275	5183114000	22kΩ
R176, R276	5183122000	47kΩ
R177, R277	5183066000	220Ω
R178, R278	5183114000	22kΩ
R179, R279	5183122000	47kΩ
R180, R280	5183058000	100Ω
R181, R281	5183114000	22kΩ
R182, R282	5183122000	47kΩ
R183, R283	5183058000	100Ω
R184, R284	5183114000	22kΩ
R185, R285	5183122000	47kΩ
R186, R286	5183138000	220kΩ
R301	⚠5183106000	10kΩ
R302	5183082000	1kΩ
R303	5183088000	1.8kΩ
R304	5183090000	2.2kΩ
R305	5183118000	33kΩ
R306	5183130000	100kΩ
R307	5183106000	10kΩ
R308	5183102000	6.8kΩ

REF. NO.	PART NO.	DESCRIPTION			
R309	5183122000	47kΩ			
R310	⚠5183034000	10Ω			
R312~R314	⚠5184265000	470Ω	Nonflammable		
CAPACITORS					
C101, C201	5171588000	Elec	4.7μF	25V	
C102, C202	5260165252	Elec	47μF	25V	
C103, C203	5170427000	Mylar	0.012μF	100V	5%
C104, C204	5172318000	Ceramic	330pF	50V	10%
C105, C205	5171590000	Elec	10μF	16V	20%
C106, C206	5171590000	Elec	10μF	16V	20%
C107, C207	5171590000	Elec	10μF	16V	20%
C108, C208	5172992800	Elec	1μF	50V	
C109, C209	5172313000	Ceramic	120pF	50V	10%
C110, C210	5172318000	Ceramic	330pF	50V	10%
C111, C211	5173027800	Elec	33μF	16V	
C112, C212	5171585000	Elec	2.2μF	50V	20%
C113, C213	5173731000	Polypro.	820pF	100V	5%
C114, C214	5172992800	Elec	1μF	50V	
C115, C215	5260165952	Elec	100μF	10V	
C116, C216	5172992800	Elec	1μF	50V	
C117, C217	5260221550	Elec	4.7μF	35V	
C118, C218	5170421000	Mylar	0.0068μF	100V	5%
C119, C219	5260165052	Elec	47μF	10V	
C120, C220	5171590000	Elec	10μF	16V	20%
C121, C221	5260165252	Elec	47μF	25V	
C122, C222	5172308000	Ceramic	47pF	50V	10%
C123, C223	5260165952	Elec	100μF	10V	
C124, C224	5171590000	Elec	10μF	16V	20%
C125, C225	5171590000	Elec	10μF	16V	20%
C126, C226	5260165252	Elec	47μF	25V	
C127, C227	5171590000	Elec	10μF	16V	20%
C128, C228	5172308000	Ceramic	47pF	50V	10%
C129, C229	5170086000	Elec	1μF	50V	
C130, C230	5170441000	Mylar	0.047μF	100V	5%
C131, C231	5260165252	Elec	47μF	25V	
C132, C232	5171590000	Elec	10μF	16V	20%
C133, C233	5170453000	Mylar	0.15μF	100V	5%
C134, C234	5170421000	Mylar	0.0068μF	100V	5%
C135, C235	5171590000	Elec	10μF	16V	20%
C136, C236	5170425000	Mylar	0.01μF	100V	5%
C137, C237	5170425000	Mylar	0.01μF	100V	5%
C138, C238	5170429000	Mylar	0.015μF	100V	5%
C139, C239	5170431000	Mylar	0.018μF	100V	5%
C140, C240	5173731000	Polypro.	820pF	100V	5%
C141, C241	5267205600	Trimmer	100pF		
C142, C242	5267205600	Trimmer	100pF		
C143, C243	5054204000	Ceramic	0.01μF	50V	10%
C144, C244	5054204000	Ceramic	0.01μF	50V	10%
C145, C245	5170401000	Mylar	0.001μF	100V	5%
C146	5170401000	Mylar	0.001μF	100V	5%
C301, C302	5173045800	Elec	100μF	16V	
C303	5173053800	Elec	220μF	10V	
C304~C308	5260165252	Elec	47μF	25V	
VARIABLE RESISTORS					
R111, R211	5150092000	Semi-fixed	10kΩ(B)		
R114, R214	5150233000	Semi-fixed	20kΩ(B)		
R116, R216	5150233000	Semi-fixed	20kΩ(B)		
R118, R218	5150233000	Semi-fixed	20kΩ(B)		
R120, R220	5150233000	Semi-fixed	20kΩ(B)		

REF. NO.	PARTS NO.	DESCRIPTION
R123, R223	5053446000	Semi-fixed 1kΩ(B)
R131, R231	5150096000	Semi-fixed 100kΩ(B)
R145, R245	5282705900	10kΩ(A) x 2
R146, R246	5282705900	10kΩ(A) x 2
R158, R258	5150094000	Semi-fixed 50kΩ(B)
R159, R259	5150094000	Semi-fixed 50kΩ(B)
	COILS	
L101, L201	5056659000	Trap, 3mH 20%
L102, L202	5160041000	Record EQ, 2.4mH 20%
L103, L203	5160041000	Record EQ, 2.4mH 20%
L104, L204	5160041000	Record EQ, 2.4mH 20%
L105, L205	5160041000	Record EQ, 2.4mH 20%
L106, L206	5056659000	Trap, 3mH 20%
	MISCELLANEOUS	
U301	5040090000	BIAS OSC Unit
K301	5061137000	Relay, Reed; LAB 2L 12V
S101～S104	5300023500	Switch, Push; 4-gang
	5210037800	Switch PCB (X-300R only)

POWER SUPPLY PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	5200018731	PCB Assy [U, C]
	5200018743	PCB Assy [E, UK, A]
	5200018753	PCB Assy [GE, J]
	5210018700	PCB [U, C, GE, J]
	5210031200	PCB [E, UK, A]
	TRANSISTORS	
Q501	⚠ 5145087000	2SD-313E
Q502	5042625000	2SC-1318S
Q503	5042383000	2SC-536F
Q504	5145087000	2SD-313E
Q505	5145043000	2SA-720Q
Q506, Q507	5145078000	2SD-600F
Q508	5145043000	2SA-720Q
Q509, Q510	5145091000	2SC-945AK
Q511	5042553000	2SA-733P
Q514	5145091000	2SC-945K
	DIODES	
D501～D504	⚠ 5143243000	ERB12-02G1
D505	⚠ 5224540901	Zener, RD6.2E-B2
D506	⚠ 5143243000	ERB12-02G1
D507～D510	⚠ 5224014200	1R5JZ61
D511～D513	5143243000	ERB12-02G1
D514, D515	5143118000	1S2473HJ
D516, D517	5143243000	ERB12-02G1
D520, D521	⚠ 5143243000	ERB12-02G1
D523, D524	⚠ 5143243000	ERB12-02G1
	CARBON RESISTORS All resistors are rated ±5% tolerance and ¼W.	
R502	5183102000	6.8kΩ
R503	⚠ 5184306000	3.3Ω 10% 2W Cement
R504	5183106000	10kΩ
R505	5183102000	6.8kΩ
R506	5183112000	18kΩ
R507	5183096000	3.9kΩ
R509	5183106000	10kΩ
R510	⚠ 5184233000	22Ω Nonflammable
R511	5183084000	1.2kΩ
R512	5183108000	12kΩ
R513	5183114000	22kΩ
R514	5183106000	10kΩ
R515, R516	⚠ 5185790000	1kΩ 1W Metal Film
R517	5183106000	10kΩ
R518	⚠ 5184755000	100Ω 1W Metal Film
R519	5183082000	1kΩ
R520	5183106000	10kΩ
R521, R522	5183122000	47kΩ
R523	5183114000	22kΩ
R524	5183122000	47kΩ
R525	5183124000	56kΩ
R526	5183106000	10kΩ
R527	5183122000	47kΩ
R530, R534	5183098000	4.7kΩ
R536	5183130000	100kΩ
R537	5183102000	6.8kΩ
R538	⚠ 5184755000	100Ω 1W Metal Film
R539	5183072000	390Ω
	CAPACITORS	
C501	5171613000	AC Film 3μF AC 50V 5%
C502	5267702700	AC Film 0.5μF AC 50V 10%
C503	5171613000	AC Film 3μF AC 50V 5%
C504	5267702700	AC Film 0.5μF AC 50V 10%
C505	⚠ 5172973800	Elec 1000μF 50V

[U]: U.S.A. [C]: CANADA [GE]: GENERAL EXPORT
[A]: AUSTRALIA [E]: EUROPE [UK]: U.K.
[J]: JAPAN

REF. NO.	PARTS NO.	DESCRIPTION			
C506	5172936800	Elec	100μF	35V	
C507	5172927800	Elec	47μF	35V	
C508	5172971800	Elec	1000μF	25V	
C509	⚠5172978800	Elec	2200μF	25V	
C510	⚠5172973800	Elec	1000μF	25V	
C511	5054802000	Malar	0.01μF	100V	10%
C513	5172882800	Elec	1μF	50V	
C514	5172902800	Elec	10μF	35V	
C515	5260069910	Elec	47μF	50V	20%
C516	5172937800	Elec	100μF	50V	
C517	5172919800	Elec	33μF	50V	
C521	5172924800	Elec	47μF	10V	
C522	⚠5172970800	Elec	1000μF	16V	
C523	5172961800	Elec	470μF	16V	
C524	5263164500	Metalized	0.047μF	250V	10% [E, UK, A]
C525	5263164900	Metalized	0.1μF	250V	10% [E, UK, A]
Z501	⚠5171615000	Polypro	0.22μF	125V	20%
Z502	⚠5052905000	Spark killer	0.1μF+120/300V		

FUSES

F501, F502	⚠5307003600	Fuse 1A 250V [U, C, GE, J]
F501, F502	⚠5041140000	Mini Fuse 1A 250V [E, UK, A]
F503	⚠5307004300	Fuse 3A 250V [U, C, GE, J]
F503	⚠5142191000	Mini Fuse 3.15A 250V [E, UK, A]
F504	⚠5307003600	Fuse 1A 250V [U, C, GE, J]
F504	⚠5041140000	Mini Fuse 1A 250V [E, UK, A]
F505	⚠5307004100	Fuse 2A 250V [U, C, GE, J]
F505	⚠5142189000	Mini Fuse 2A 250V [E, UK, A]
F506	⚠5307004000	Fuse 1.6A 250V [U, C, GE, J]
F506	⚠5142188000	Mini Fuse 1.6A 250V [E, UK, A]

MISCELLANEOUS

5041237000	Fuse Holder [U, C, GE, J]
5142087000	Fuse Holder [E, UK, A]
5800017000	Plate, Jumper

REVERSE PCB ASSY (X-300R only)

REF. NO.	PART NO.	DESCRIPTION
	5200036702	PCB Assy
	5210036701	PCB

TRANSISTORS

Q901 ~ Q906	5145091000	2SC-945AK
Q907	5145078000	2SD-600F
Q908 ~ Q918	5145091000	2SC-945AK

DIODES

D901 ~ D904	5143118000	1S2473HJ
D905, D906	5143243000	ERB12-02G1
D907, D908	5143118000	1S2473HJ
D909	5224540901	Zener, RD6.2E-B2
D910	5143243000	ERB12-02G1
D911 ~ D918	5143118000	1S2473HJ
D919, D920	5143243000	ERB12-02G1

CARBON RESISTORS

All resistors are rated ±5% tolerance and ¼W.

R901 ~ R904	5183122000	47kΩ
R905	5183130000	100kΩ
R906	5183094000	3.3kΩ
R907, R908	5183122000	47kΩ
R909	5183130000	100kΩ
R910	5183094000	3.3kΩ
R911 ~ R914	5183122000	47kΩ
R915	5183106000	10kΩ
R916, R917	5183122000	47kΩ
R918	5183098000	47kΩ
R919	5183082000	1kΩ
R920	5183106000	10kΩ
R921, R922	5183114000	22kΩ
R923 ~ R927	5183122000	47kΩ
R928	5183140000	270kΩ
R929	5183106000	10kΩ
R930	5183122000	47kΩ
R931, R932	5183062000	150Ω
R933 ~ R936	5183122000	47kΩ
R937	5183106000	10kΩ
R938	5183088000	1.8kΩ
R939	5183102000	6.8kΩ
R940, R941	5183094000	3.3kΩ
R942 ~ R944	5183122000	47kΩ
R945	5183106000	10kΩ
R946, R947	5183122000	47kΩ
R948	5183106000	10kΩ
R949 ~ R952	5183114000	22kΩ
R953	5183106000	10kΩ
R954	5183122000	47kΩ
R955	5183088000	1.8kΩ
R956	5183122000	47kΩ
R957	5183110000	15kΩ
R958	5183090000	2.2kΩ
R959	5180026000	4.7Ω

CAPACITORS

C901	5172886000	Elec	2.2μF	50V	
C902	5172236000	Ceramic	0.01μF	50V	20%
C903, C904	5172882000	Elec	1μF	50V	
C905	5172908000	Elec	22μF	16V	
C906	5172886000	Elec	2.2μF	50V	
C907	5170519000	Mylar	0.1μF	100V	10%
C908	5172900000	Elec	10μF	16V	
C909, C910	5172896000	Elec	4.7μF	50V	
C911	5172933000	Elec	100μF	10V	

[U]: U.S.A. [C]: CANADA [GE]: GENERAL EXPORT
[A]: AUSTRALIA [E]: EUROPE [UK]: U.K.
[J]: JAPAN

REF. NO.	PARTA NO.	DESCRIPTION
	MISCELLANEOUS	
K901	5290010500	Relay, 24 V LC2-N-US
K902, K903	5290008500	Relay, 24V G2U-112P
Z901 ~ Z904	5052905000	Spark killer 0.1μF+120/300V

HEAD RELAY PCB ASSY (X-300R only)

REF. NO.	PARTS NO.	DESCRIPTION
	5200036900	PCB Assy
	5210036900	PCB
R991 ~ R994	5183150000	Carbon resistors 680kΩ ±5% ¼W
K991	5290008900	Relay 24V G2V-2
C991	5172896000	Elec 4.7μF 50V

LED PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	5200008500	PCB Assy
	5210008500	PCB
D701	5143139000	LED SLB-26GG (GREEN)
D702	5143140000	LED SLB-26UR (RED)
D703	5143314000	LED AR3137D (RED)

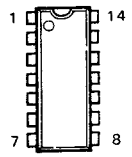
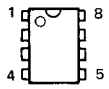
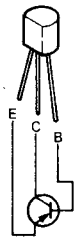
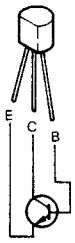
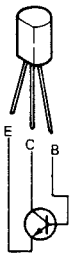
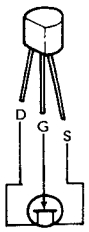
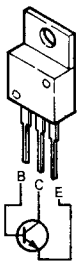
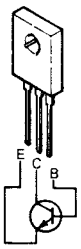
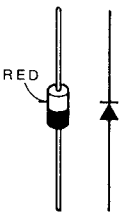
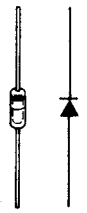
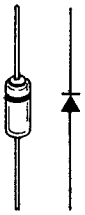
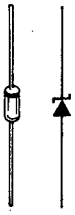
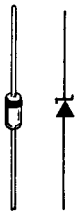
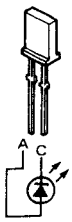
DIRECTION PCB ASSY (X-300R only)

REF. NO.	PARTS NO.	DESCRIPTION
	5200036810	PCB Assy
	5210036800	PCB
S981	5300022100	Push Switch 2-2N
S982, S983	5300022200	Push Switch, (Non Rock)
D981	5225007100	LED, GL-9NG2 (GREEN)
D982, D983	5225007200	LED, GL-9NG6 (GREEN)
R981	5183062000	Carbon resistor 150Ω ±5% ½W

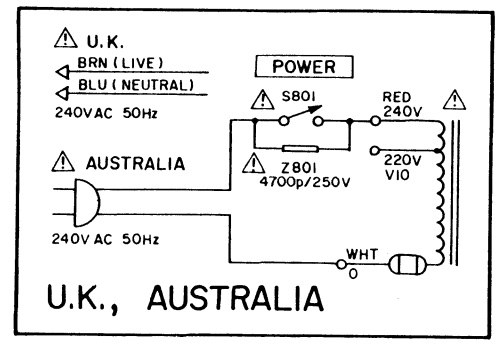
IN/OUT PUT PCB ASSY

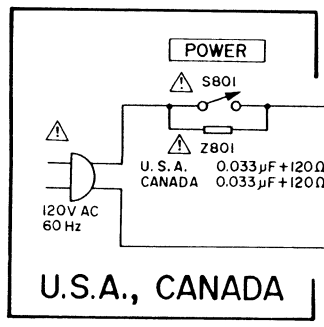
REF. NO.	PARTS NO.	DESCRIPTION
	5200031400	PCB Assy
	5257104002	PCB
R199, R299	5183124000	Carbon resistors 56kΩ ±5% ¼W

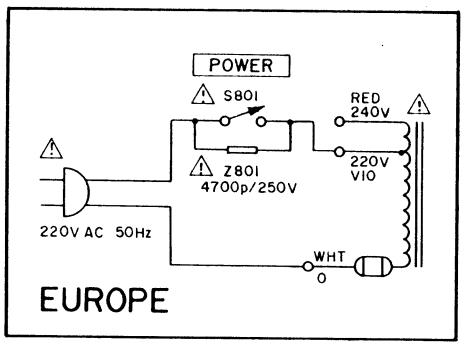
TABLE OF SEMICONDUCTORS

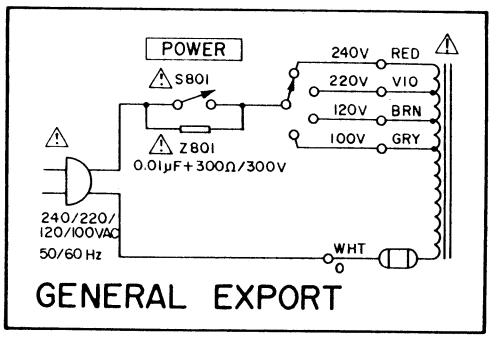
HA - 11122W (TOP VIEW) 	JRC - 4558D - D JRC - 4558D - F (TOP VIEW) 	2SA - 720Q 2SA - 733P 	2SC - 536F 2SC - 1318S 2SC - 945AK 2SC - 2240BL 	2SC - 1384Q 
2SK - 68AM 	2SD - 313E 	2SD - 600K(F) 	ERB12 - D2G1 	1S2473HJ 
IK - 60 	RD - 6,2EB RD - 4,7EB 	WZ - 061 	SLB - 26GG (GREEN) SLB - 26UR (RED) 	AR3137D (RED)
GL - 9NG2 (GREEN) 	GL - 9NG6 (GREEN) 			

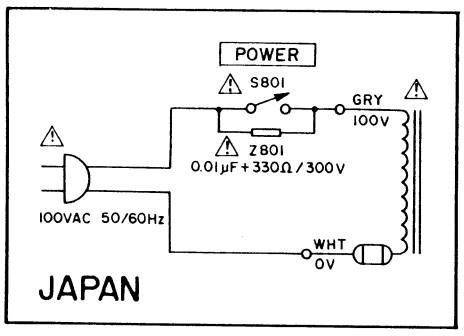
TEAC SCHEMATIC DIAGRAM (CONTROL) X-300

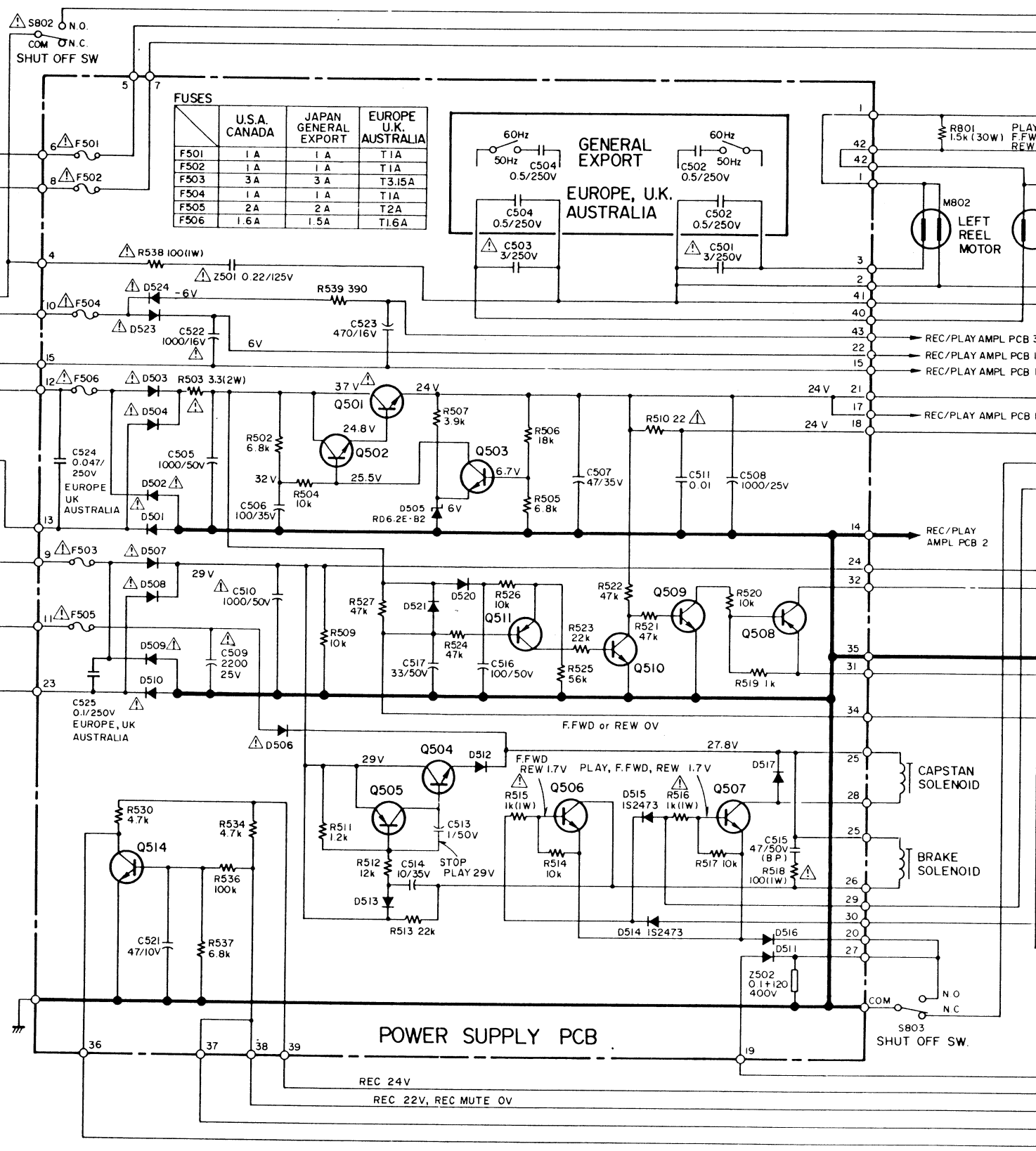








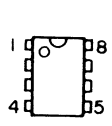




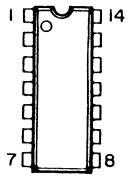
Q501	2SD313(E)	Q511	2SA733(P)
Q502	2SC1318(S)	Q512	(Not used)
Q503	2SC536(F)	Q513	(Not used)
Q504	2SD313(E)	Q514	2SC945A(K)
Q505	2SA720(Q)		
Q506	2SD600K(F)	Q601	2SC1318(S)
Q507	2SD600K(F)	Q602	2SD600K(F)
Q508	2SA720(Q)	Q603	2SA733(P)
Q509	2SC945A(K)		
Q510	2SC945A(K)		

UNLESS OTHERWISE SPECIFIED
ALL SW. ARE OFF POSITION, STOP MODE.
ALL RESISTORS IN OHM, 1/4W.
ALL CAPACITORS IN MICROFARAD.
ALL DIODES ARE ERB12-02G1.
—▭— ARE SPARK KILLERS, 0.033μ+120 OHM.

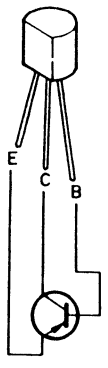
JRC-4558D-D
JRC-4558D-F



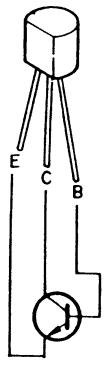
HA-11122W



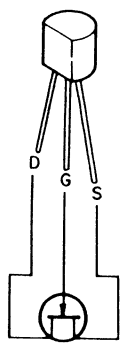
2SA720Q
2SA733P



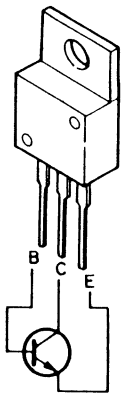
2SC536F 2SC1318S
2SC1384R 2SC945AK
2SC2240BL 2SD655E



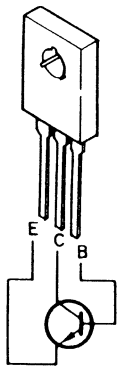
2SK68AM



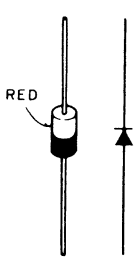
2SD313E



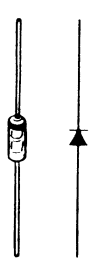
2SD600K(F)



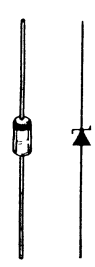
ERB12-02G1



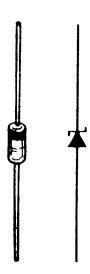
IS2473HJ



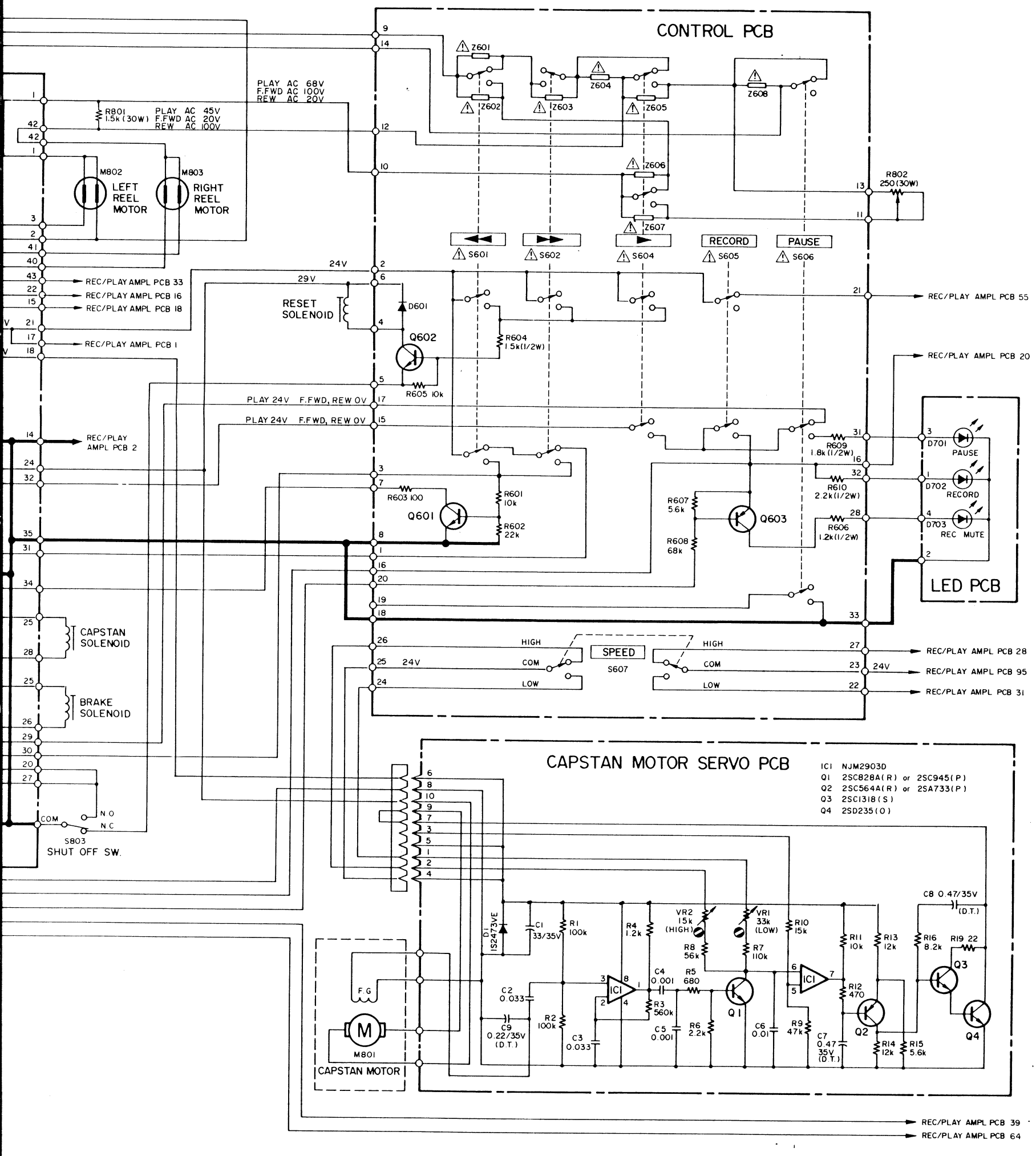
RD6.2EB
RD4.2EB



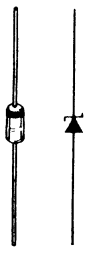
WZ-061



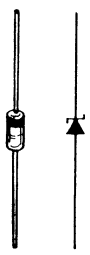
INSTRUCTIO
BEFORE RETURNING APPL
CURRENT OR RESISTANCE M
PARTS ARE ACCEPTABLEY I



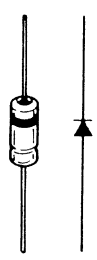
RD6.2EB
RD4.2EB



WZ-061



IK60



SLB-26GGI(GREEN)
SLB-26URI(RED)

AR3I370(RED)

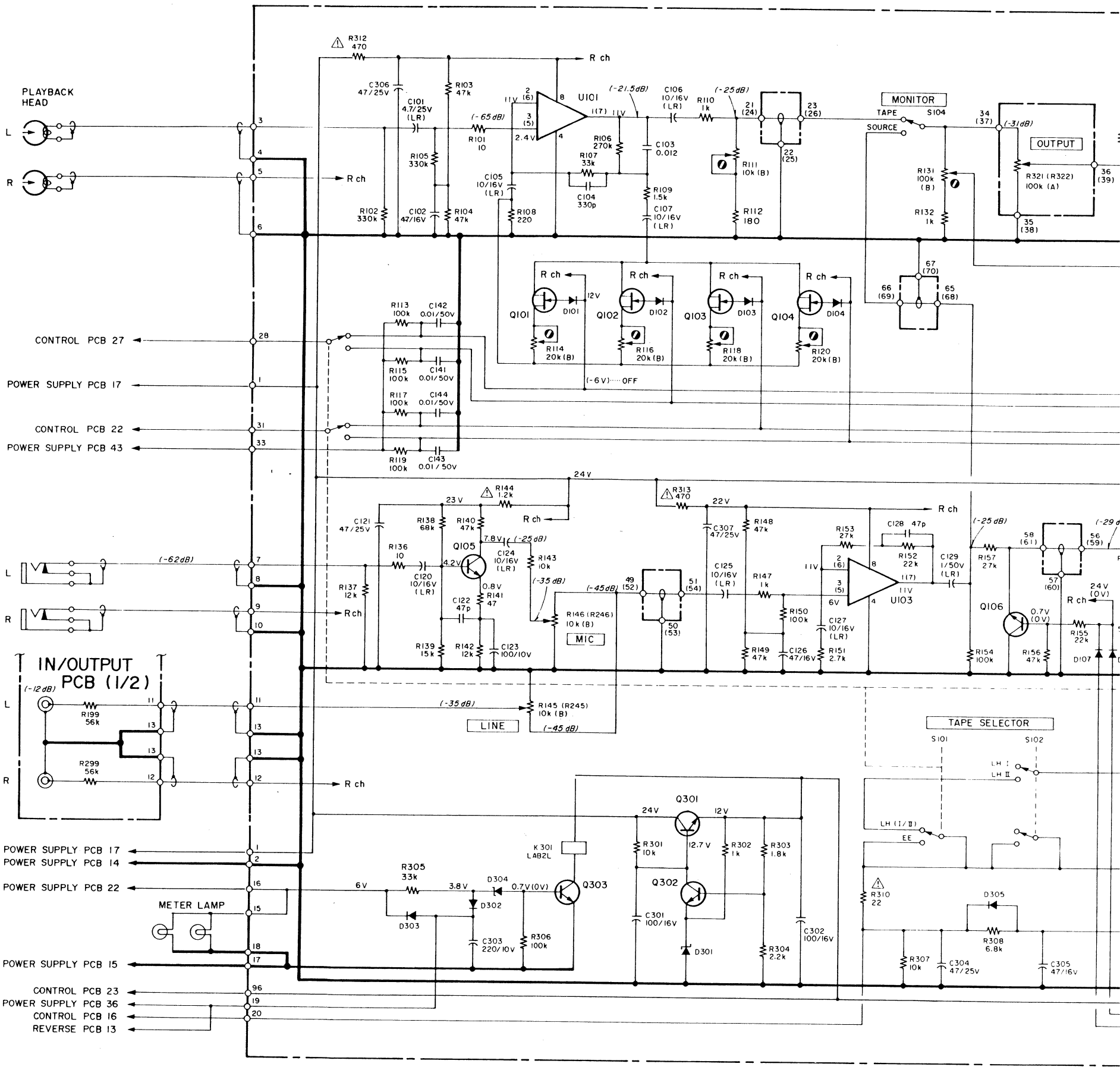
NOTES

1. All resistors are ¼ watt, ±5%, unless marked otherwise.
   Resistor values are in ohms (k = 1,000 ohms, M = 1,000,000 ohms).
2. All capacitor values are in microfarads (p = picofarads).
3. All diodes are ERB12-02GI unless otherwise specified.
4. ⚠ Parts markedwith this sign are safety critical components. They must always be replaced with identical components-refer to the TEAC parts list and ensure exact replacement.
5. DC voltages were measured during REC/PAUSE mode unless otherwise noted.
6. ——— +B power supply circuit
7. ▭ : front panel indication
   ▭ : rear panel indication

INSTRUCTIONS FOR SERVICE PERSONNEL
BEFORE RETURNING APPLIANCE TO THE CUSTOMER, MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLEY INSULATED FROM THE SUPPLY CIRCUIT.

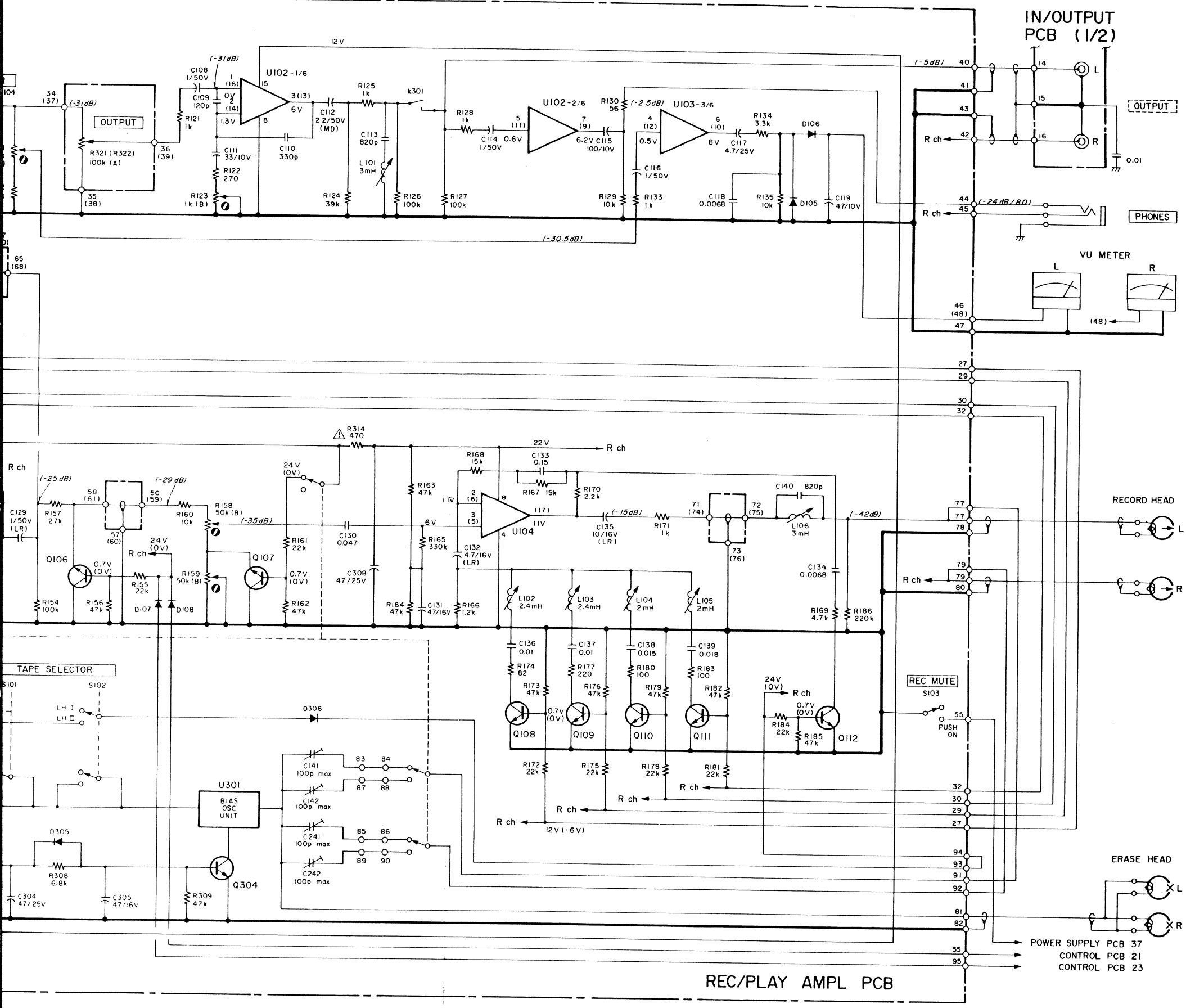
X-300
Stereo Tape Deck
(September, 1983)

TEAC SCHEMATIC DIAGRAM (AMPLIFIER) X-300



U101	JRC4558DD	Q101 (Q201)	2SK68AM	Q110 (Q210)	2SC945AK	D101 (D201)	IS2473HJ	D301	RD6.2EB
U102	HA1122W	Q102 (Q202)	2SK68AM	Q112 (Q212)	2SC945AK	D102 (D202)	IS2473HJ	D302	IS2473HJ
U103	4558DF	Q103 (Q203)	2SK68AM			D103 (D203)	IS2473HJ	D303	IS2473HJ
U104	4558DF	Q104 (Q204)	2SK68AM			D104 (D204)	IS2473HJ	D304	RD4.2EB
		Q105 (Q205)	2SC2240BL			D105 (D205)	IK60	D305	IS2473HJ
								D306	IS2473HJ
		Q106 (Q206)	2SD655E	Q301	2SC1384(R)	D106 (D206)	IK60		
		Q107 (Q207)	2SC945AK	Q302	2SC945AK	D107 (D207)	IS2473HJ		
		Q108 (Q208)	2SC945AK	Q303	2SC945AK	D108 (D208)	IS2473HJ		
		Q109 (Q209)	2SC945AK	Q304	2SC945AK				
		Q110 (Q210)	2SC945AK						

INSTRUCT
BEFORE RETURNING APP
CURRENT OR RESISTANCE
PARTS ARE ACCEPTABLEY



J	D301	RD6.2EB
J	D302	IS2473HJ
J	D303	IS2473HJ
J	D304	RD4.2EB
	D305	IS2473HJ
	D306	IS2473HJ
J		
J		

INSTRUCTIONS FOR SERVICE PERSONNEL

BEFORE RETURNING APPLIANCE TO THE CUSTOMER, MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLEY INSULATED FROM THE SUPPLY CIRCUIT.

NOTES

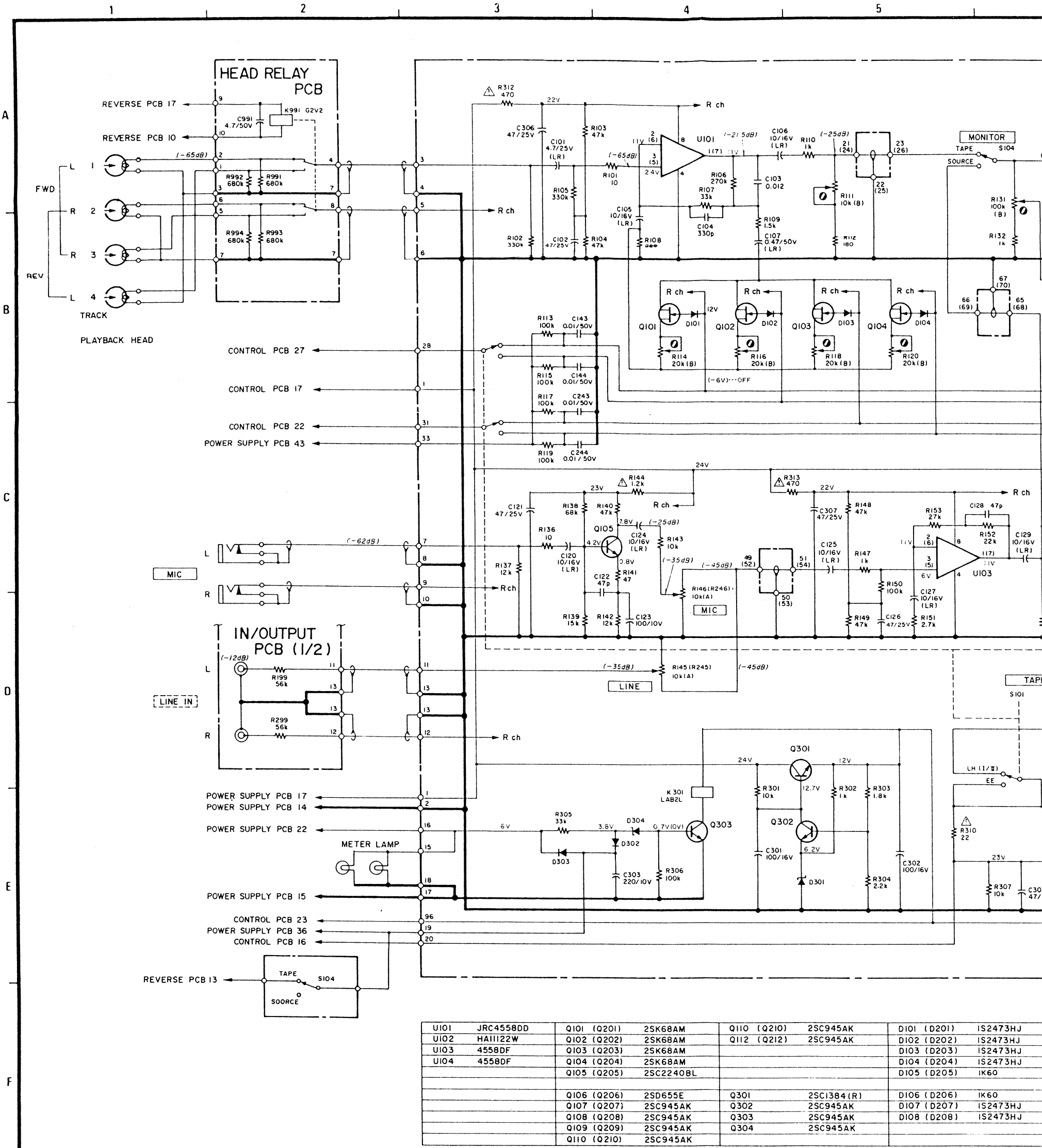
1. Schematic diagram shown for left channel except for some of the components.
2. All resistors are ¼ watt, ±5%, unless marked otherwise.
   Resistor values are in ohms (k = 1,000 ohms, M = 1,000,000 ohms).
3. All capacitor values are in microfarads (p = picofarads).
4. ⚠ Parts marked with this sign are safety critical components. They must always be replaced with identical components-refer to the TEAC parts list and ensure exact replacement.
5. Voltage and level values are for reference only.
6. DC voltages were measured during REC/PAUSE mode unless otherwise noted.
7. 0 dB = 0.775V
8. ——— +B power supply circuit
9. ▭ : front panel indication
   ▭ : rear panel indication

X-300

Stereo Tape Deck

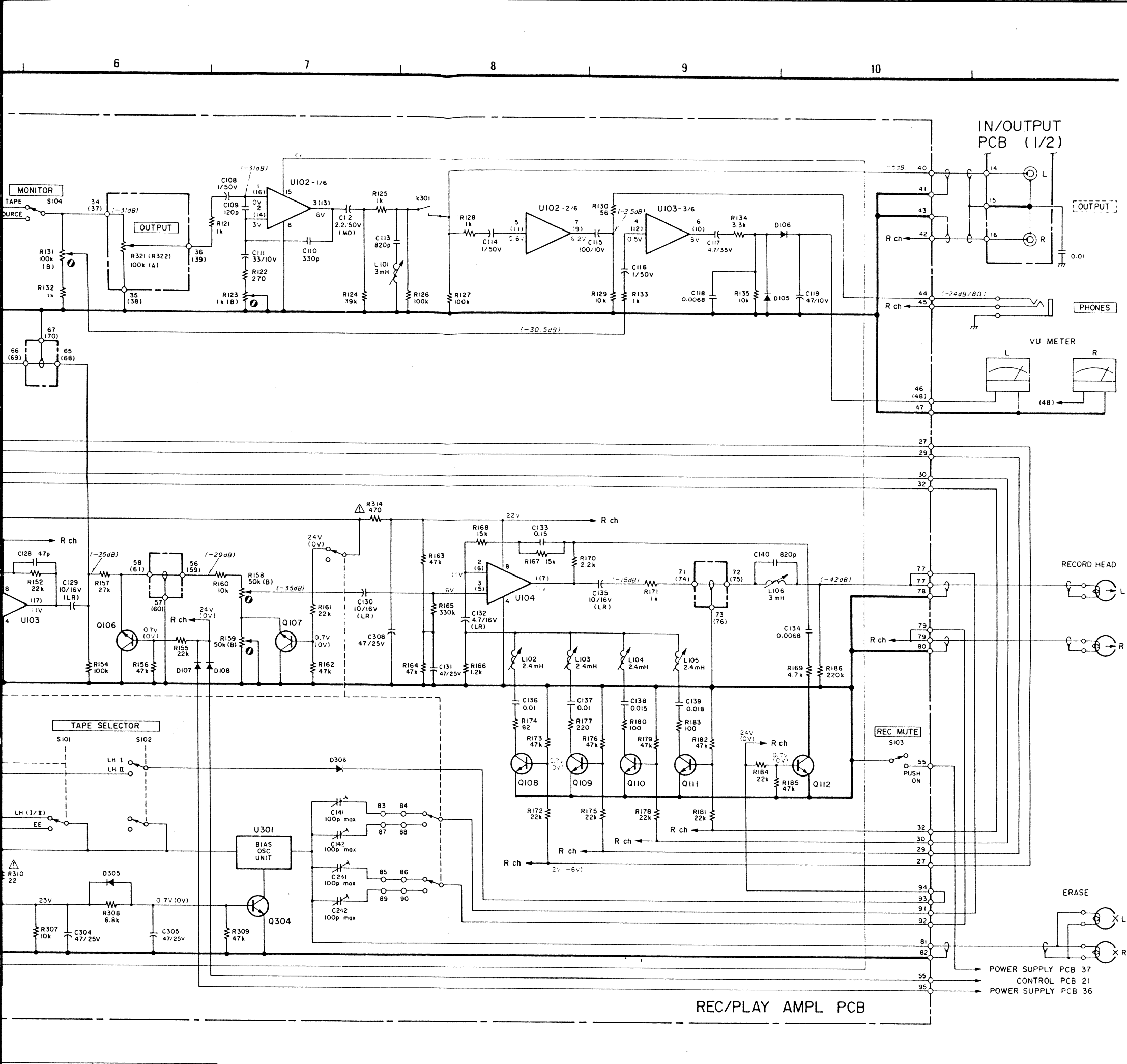
(September, 1983)

TEAC SCHEMATIC DIAGRAM (AMPLIFIER) X-300R



U101	JRC4558DD	Q101 (Q201)	2SK68AM	Q110 (Q210)	2SC945AK	D101 (D201)	IS2473HJ
U102	HA1112W	Q102 (Q202)	2SK68AM	Q112 (Q212)	2SC945AK	D102 (D202)	IS2473HJ
U103	4558DF	Q103 (Q203)	2SK68AM			D103 (D203)	IS2473HJ
U104	4558DF	Q104 (Q204)	2SK68AM			D104 (D204)	IS2473HJ
		Q105 (Q205)	2SC2240BL			D105 (D205)	IK60
		Q106 (Q206)	2SD655E	Q301	2SC1384(R)	D106 (D206)	IK60
		Q107 (Q207)	2SC945AK	Q302	2SC945AK	D107 (D207)	IS2473HJ
		Q108 (Q208)	2SC945AK	Q303	2SC945AK	D108 (D208)	IS2473HJ
		Q109 (Q209)	2SC945AK	Q304	2SC945AK		
		Q110 (Q210)	2SC945AK				

BEFORE
CURREN
PARTS A



	IS2473HJ	D301	RD6.2EB
)	IS2473HJ	D302	IS2473HJ
)	IS2473HJ	D303	IS2473HJ
)	IS2473HJ	D304	RD4.2EB
)	IK60	D305	IS2473HJ
		D306	IS2473HJ
)	IK60		
)	IS2473HJ		
)	IS2473HJ		

INSTRUCTIONS FOR SERVICE PERSONNEL

BEFORE RETURNING APPLIANCE TO THE CUSTOMER, MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLEY INSULATED FROM THE SUPPLY CIRCUIT.

NOTES

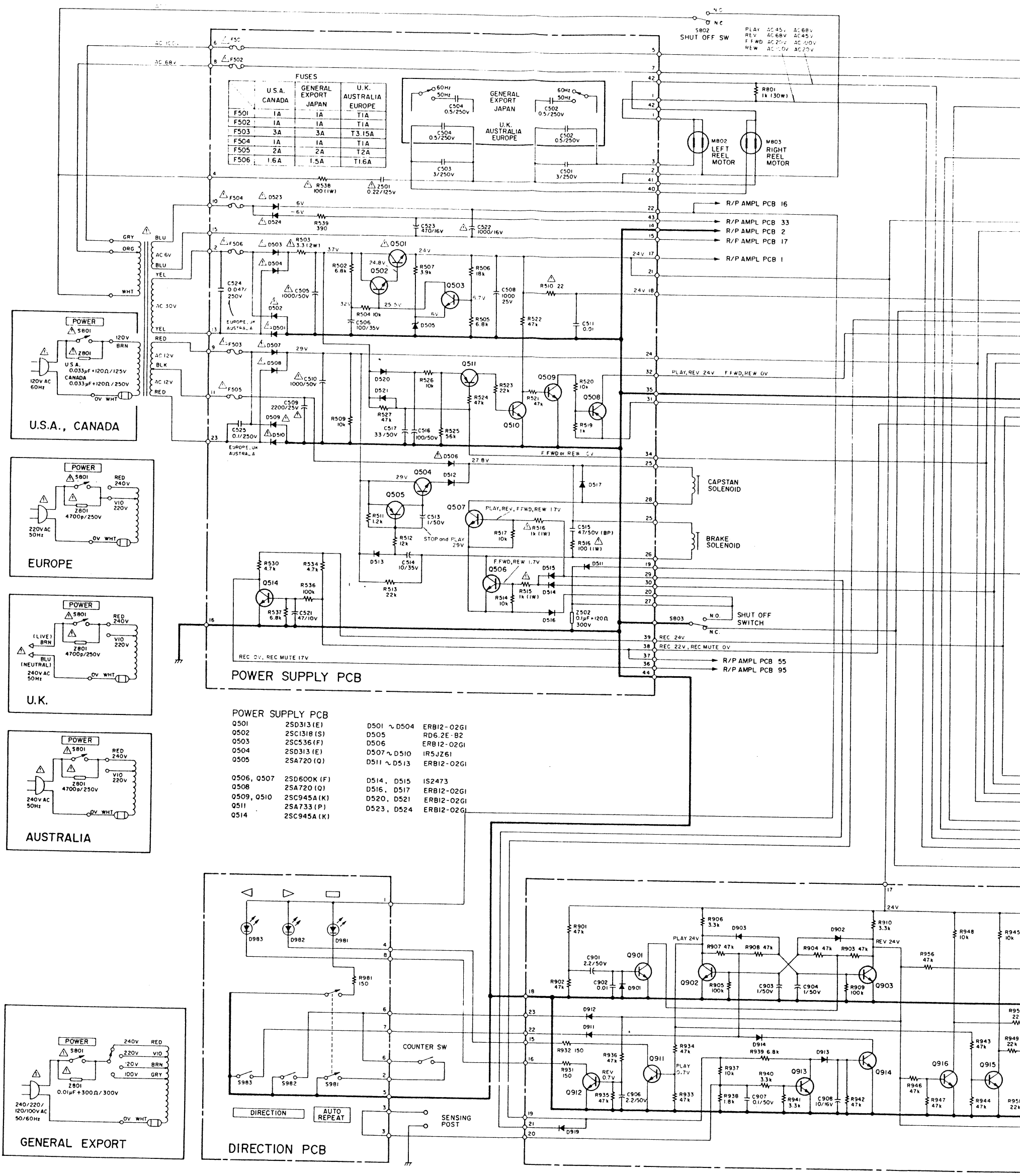
1. Schematic diagram shown for left channel except for some of the components.
2. All resistors are ¼ watt, ±5%, unless marked otherwise.
   Resistor values are in ohms (k = 1,000 ohms).
3. All capacitor values are in microfarads (p = picofarads).
4. ⚠ Parts marked with this sign are safety critical components. They must always be replaced with identical components-refer to the TEAC parts list and ensure exact replacement.
5. Voltage and level values are for reference only.
6. DC voltages were measured during REC/PAUSE mode unless otherwise noted.
7. 0 dB = 0.775V
8. ——— +B power supply circuit
9. [ ] : front panel indication
   [- - -] : rear panel indication

X-300R

Stereo Tape Deck

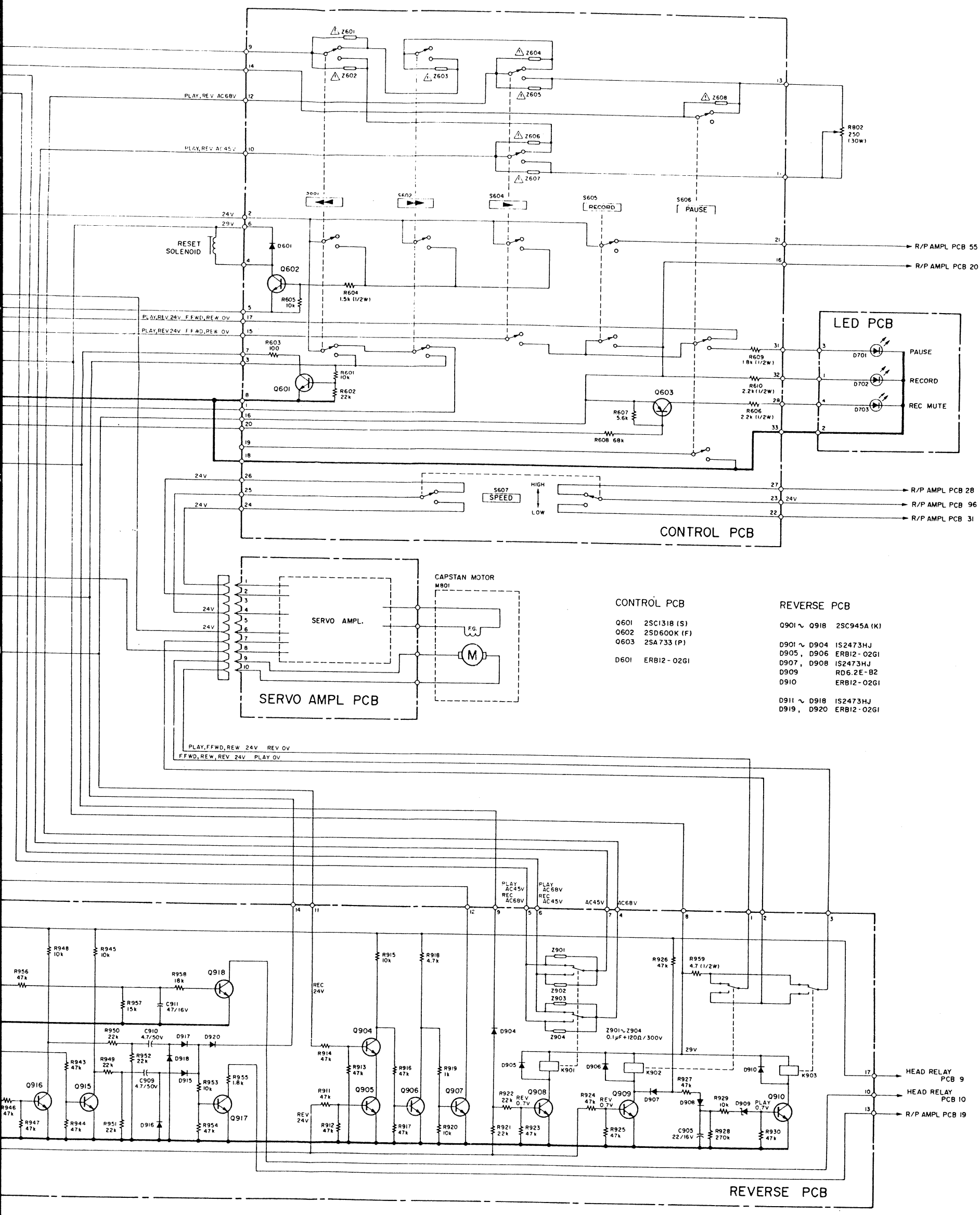
(September, 1983)

TEAC SCHEMATIC DIAGRAM (CONTROL) X-300R



INSTRUCTIONS FOR SERVICE PERSONNEL

BEFORE RETURNING APPLIANCE TO THE CUSTOMER, MA
CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE
PARTS ARE ACCEPTABLEY INSULATED FROM THE SUPPLY CI



CONTROL PCB

Q601	2SC1318 (S)
Q602	2SD600K (F)
Q603	2SA733 (P)
D601	ERB12-02GI

REVERSE PCB

Q901 ~ Q918	2SC945A (K)
D901 ~ D904	IS2473HJ
D905, D906	ERB12-02GI
D907, D908	IS2473HJ
D909	RD6.2E-B2
D910	ERB12-02GI
D911 ~ D918	IS2473HJ
D919, D920	ERB12-02GI

NOTES

1. All resistors are ¼ watt, ±5%, unless marked otherwise. Resistor values are in ohms (k = 1,000 ohms).
2. All capacitor values are in microfarads (p = picofarads).
3. ⚠ Parts markedwith this sign are safety critical components. they must always be replaced with identical components-refer to the TEAC parts list and ensure exact replacement.
4. DC voltages were measured during REC/PAUSE mode unless otherwise noted.
5. ——— +B power supply circuit
6. [ ] : front panel indication
   [- - -] : rear panel indication

RVICE PERSONNEL
THE CUSTOMER, MAKE LEAKAGE-
ENTS TO DETERMINE THAT EXPOSED
FROM THE SUPPLY CIRCUIT.

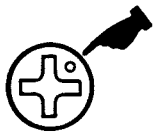
X-300R

Stereo Tape Deck

(September, 1983)

ASSEMBLING HARDWARE CODING LIST

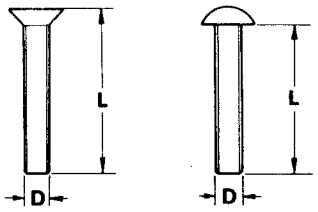
All screws conform to ISO standards, and have crossrecessed heads, unless otherwise noted. ISO screws have the head inscribed with a point as in the figure to the right.



FOR EXAMPLE:

B M 3 x 6

- B — Nomenclature
- M — Metric System
- 3 — Diameter in mm (D) *
- 6 — Length in mm (L)



* Inner dia. for washers and nuts

	Code	Name	Type
MACHINE SCREW	R	Round Head Screw	
	P	Pan Head Screw	
	T	Stove Head Screw (Truss)	
	B	Binding Head Screw	
	F	Flat Countersunk Head Screw	
	O	Oval Countersunk Head Screw	
WOOD SCREW	RW	Round Head Wood Screw	
TAPTITE SCREW	PTT	Pan Head Taptite Screw	
	WTT	Washer Head Taptite Screw	
SEMS SCREW	BSA	Binding Head SEMS Screw(A Type)	
	BSB	Binding Head SEMS Screw(B Type)	
	BSF	Binding Head SEMS Screw(F Type)	
	PSA	Pan Head SEMS Screw(A Type)	
	PSB	Pan Head SEMS Screw(B Type)	

	Code	Name	Type
TAPPING SCREW	BTA	Binding Head Tapping Screw(A Type)	
	BTB	Binding Head Tapping Screw(B Type)	
	RTA	Round Head Tapping Screw(A Type)	
	RTB	Round Head Tapping Screw(B Type)	
SETSCREW	SF	Hex Socket Setscrew(Flat Point)	
	SC	Hex Socket Setscrew(Cup Point)	
	SS	Slotted Socket Setscrew(Flat Point)	
WASHER	E	E-Ring (Retaining Washer)	
	W	Flat Washer (Plain)	
	SW	Lock Washer (Spring)	
	LWI	Lock Washer (Internal Teeth)	
	LWE	Lock Washer (External Teeth)	
	TW	Trim Washer (Countersunk)	
NUT	N	Hex Nut	

X-300R/X-300

TEAC®

ティアック株式会社

	本社 営業部	180・東京都武蔵野市中町3－7－3	電話 武蔵野 (0422) 53-1111代
製品についてのお問合わせ サービスに関するお問合わせ	札幌営業所	064・札幌市中央区南7条西2－2くぼたビル	電話 札幌 (011)521-4101代
	仙台営業所	980・仙台市1番町2－5－5中央ビル	電話 仙台 (0222) 27-1501代
	大宮営業所	330・大宮市桜木町4－2ロースベイ大宮ビル	電話 大宮 (0486) 42-4551代
	東京営業所	100・東京都千代田区永田町2－10－7星ガ岡会館	電話 東京 (03)592-1831代
	千代田営業所	100・東京都千代田区永田町2－10－7星ガ岡会館	電話 東京 (03)592-1836代
	千葉出張所	280・千葉市松波1－11－3石橋松波ビル	電話 千葉 (0472) 55-1281代
	立川営業所	190・東京都立川市栄町4－13－2	電話 立川 (0425) 25-4721代
	横浜営業所	221・横浜市神奈川区沢渡1－1高島台第一ビル	電話 横浜 (045)312-3270代
	名古屋営業所	464・名古屋市千種区東山通り3－2－3	電話 名古屋 (052)782-4581代
	静岡出張所	420・静岡市中島大割2861－1	電話 静岡 (0542) 81-6561代
	大阪営業所	564・大阪府吹田市垂水町3－34－10	電話 大阪 (06)384-5201代
	京都出張所	600・京都市下京区大宮通四条下ル四条大宮町21番地三虎ビル	電話 京都 (075)842-0751代
	神戸出張所	650・神戸市中央区山本通り3－1－3谷口マンション内	電話 神戸 (078)242-2458代
	岡山出張所	700・岡山市十日市中町1番40号	電話 岡山 (0862) 25-8601代
	広島営業所	733・広島市中区中島町10－24	電話 広島 (082)243-3581代
	福岡営業所	812・福岡市博多区博多駅東2－17－5モリメンビル	電話 福岡 (092)431-5781代
サービスに関するお問合わせ	本社サービス1課	180・東京都武蔵野市中町3－7－3	電話 武蔵野 (0422) 53-3242代
	沖縄サービスセンター	901-22・沖縄県宜野湾市字喜友名229	電話 沖縄 (09889) 2-2020代
技術的なお問合わせ	テープデッキ相談室	180・東京都武蔵野市中町3－7－3	電話 武蔵野 (0422) 53-9213代

TEAC CORPORATION	3-7-3 NAKA-CHO MUSASHINO TOKYO PHONE (0422) 53-1111
TEAC CORPORATION OF AMERICA	7733 TELEGRAPH ROAD MONTEBELLO CALIFORNIA 90640 PHONE (213) 726-0303
TEAC AUSTRALIA PTY., LTD.	115 WHITEMAN STREET SOUTH MELBOURNE VICTORIA 3205 PHONE 699-6000

PRINTED IN JAPAN 0983 AO 1.91 D-4441A